

FORESTS

JULY 1954

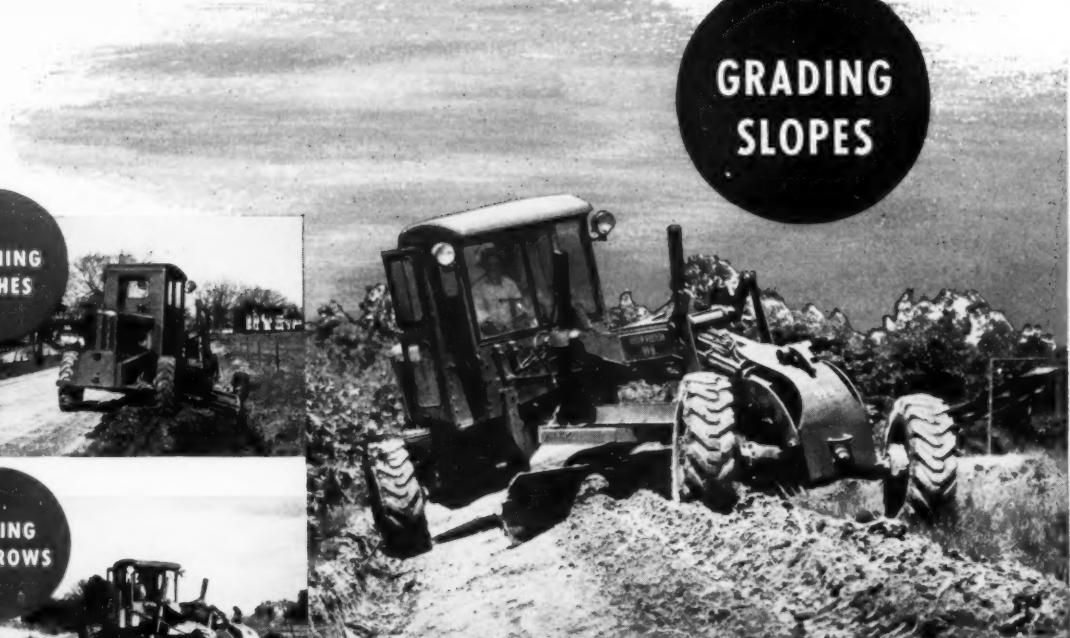


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SLOPES



CLEANING
DITCHES



MOVING
WINDROWS



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Several of this year's expeditions are completed or in operation; a few are already filled, but additional reservations are available on a number of trips. On filled trips you may be able to pick up a cancellation. We will do our best to include you on the expedition of your choice.

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SAWTOOTH WILDERNESS—Sawtooth and Boise National Forests, Idaho, July 21 to 31. (FILLED) and August 4 to 14. Cost, \$205 from Sun Valley.

HIGH UNTAS WILDERNESS—Ashley National Forest, Utah, July 26 to August 5 and August 6 to 16. Cost, \$215 from Roosevelt.

MAROON BELLS-SNOWMASS WILDERNESS—White River and Gunnison National Forests, Colorado, July 27 to August 6 and August 11 to 21. Cost, \$215 from Glenwood Springs.

SAN JUAN WILDERNESS—San Juan National Forest, Colorado, August 15 to 25 and September 1 to 11. Cost, \$215 from Durango. (FILLED)

CASCADE CREST WILDERNESS—Snoqualmie and Gifford Pinchot National Forests, Washington. August 17 to 29. Cost, \$215 from Yakima.

GLACIER PEAK-LAKE CHELAN—Chelan, Mt. Baker and Wenatchee National Forests, Washington. August 3 to 15. Cost, \$215 from Wenatchee.

PECOS WILDERNESS—Santa Fe National Forest, New Mexico, September 9 to 20. Cost, \$215 from Santa Fe.

Write or wire for detailed information and reservations.

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COVER • Photo of magnolia blossom by Dr. Warren D. Brush

THE AFA

The American Forestry Association, publishers of AMERICAN FORESTS, is a national organization—Independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and their part in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

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Letters

Invitation

EDITOR:

... Eric Lindroth, M.D., of Long Beach, California, is a man after my own heart. He loves the wilds and he particularly loves the wilds of the forest lands of the Olympic peninsula, which he says he has been "through."

But has he been "in" the argued acres of the Olympic National Park? Does he really want to crawl, dripping with rain and fog, through the hundreds of thousands of acres of dense underbrush of the rain forest? I would like to invite him on such a trackless trip, but I would not accompany him. You can't see for nothing, what with devil's clubs and other vicious brush. And look out for that tree, mister! It's old enough to collapse.

Dr. Lindroth would have 600,000 acres of mountain country and rain forest for his Lucullan yen for wilderness at his disposal if the Olympic park were reduced by some 200,000 acres. It would still be some 200,000 acres larger than the area urged by a special commission appointed by the late Harold Ickes, then Secretary of Interior.

The timber from those 200,000 acres would be managed by the United States Forest Service, under the perpetual plan you favor. The products would employ a population of some 10,000 or more, and would enrich the nation. There's lots of room for you to drip, anyhow.

Chapin Collins, Editor
Montesano Vidette
Montesano, Washington

Canadian Research

EDITOR:

Keith McCarthy's article in the June AMERICAN FORESTS entitled "Forest Research—A Going Concern in Canada" is a splendid resume of the excellent work which is being done by one department of the federal government in Canada in one very important phase of forest research, namely—that having to do with insect and disease pests. In addition, it might be pointed out that many other phases of forest research are being conducted by the federal government, the provinces, the universities, and private industry. The principal forest research agency in Canada is the Forestry Branch of the Department of Resources and Development with headquarters in Ottawa, which is carrying on research in silviculture, management, measurements, forest fire, forest economics, forest products and various other fields in forestry all across Canada. It operates two forest products laboratories carrying on work similar to that of the United States Forest Products Laboratory at Madison, Wisconsin, one at Ottawa in Ontario and one at Vancouver, British Columbia. It has several regional forest experiment stations somewhat similar to those of the United States Forest Service to carry on research in all of the major forest types with the exception of the Pacific Coast types in British Columbia.

The federal government also assists the provinces in carrying on a nationwide forest inventory, in reforestation programs,

and in certain other fields and it joins with the Canadian Pulp and Paper Association, McGill University, and a large number of individual companies in supporting the splendid pulp and paper research institute at Montreal. And just as a number of the states in the United States are carrying on some work in forest research, so a number of the provinces in Canada have research programs under their provincial foresters. This is all in addition to private research and such research in forestry and forest products as is carried on by research councils in some of the provinces supported jointly by the provincial governments and the private industries profiting from these researches.

I hope at some future time it will be possible for AMERICAN FORESTS to run additional articles on what is being done in different phases of forest research both in the United States and Canada similar to the excellent article by Keith McCarthy on forest pest research in Canada.

Lowell Besley
Dean, School of Forestry
University of British Columbia

Forest Credits

EDITOR:

AMERICAN FORESTS has scored again with A. G. Brown's article "They're Banking on Forestry" in your May issue. This is most timely while the drive is in full force to gain recognition of timber as collateral. Yes, woodlot owners from coast to coast are eager to be assured that they can count upon the bankers to break the ice and to gain their release from the contradictory position they are now in with respect to their inability to accept managed forest property as collateral for bank loans.

We hope that The American Forestry Association will adopt a strong resolution at the appropriate time, urging the enactment of the necessary amendment to the Federal Reserve Act. The accompanying draft of a resolution is typical of the active interest taken by many State Bankers Associations in this proposition.

Keep up the drive for forest credits. In so doing, The American Forestry Association is making a real contribution to the economy of the country.

Stuart Moir
Western Forestry and
Conservation Association
Portland 4, Oregon

Louisiana Story

Editor:

The Louisiana State Story in your April 1953 issue is a real service to forestry. Kerr's animated style together with the flashbacks to early management improvements give today's forestry programs a background and legitimacy. Kerr is making a name for himself as one of our most outstanding contemporary research-writers.

Roy H. Odom
Baton Rouge, Louisiana

Banking on Forestry

EDITOR:

The May issue of the magazine is at hand. The magazine is always excellent, but the May number is unusually noteworthy and I am glad to express my appreciation of many of its contents.

One article "They're Banking On Forestry" should be broadcast extensively and

(Turn to page 55)



REMINGTON POWER PUTS YOU IN RANGE!



NEW 222 Remington cartridge with 3200-ft.-per-second muzzle velocity gives maximum impact and extremely flat trajectory. Fine accuracy, moderate report . . . a perfect team with the new Remington Model 722 varmint rifle!

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"Kleanbore," "Hi-Speed" are Reg. U. S. Pat. Off. by Remington Arms Company, Inc., Bridgeport, 2, Conn.

Ike likes Smokey! Eisenhower beams as AFA President Don P. Johnston presents Smokey, the forest fire preventing bear

Photos by Jack Rottier

Eisenhower genuinely concerned over forest fire losses as he officially kicks off nationwide cooperative prevention campaign



PRESIDENT LAUNCHES ANTI-FOREST FIRE DRIVE

(See cartoon on page 13)

CONCERN over the continuing heavy loss from forest fires, nine of ten the result of human carelessness, was expressed by President Eisenhower on June 18th as he officially launched the 1953 Cooperative Forest Fire Prevention Campaign conducted by the State Foresters and the Forest Service.

Feature of the occasion at the White House was the presentation to the President of the first Smokey Teddy Bear, one of a number of educational toys and games to go on sale soon for the nation's youth as authorized by an Act of Congress. In making the presentation, Don P.

Johnston, president of The American Forestry Association, told the President the bear was for his grandson, David. Petting the bear affectionately, the President replied, "By golly, I can assure you he'll make a fine pal for my grandson. They're about the same size."

The President's official statement: "Our natural resources are an integral part of this Nation's strength and security. Today, more than ever before, we need to protect, rebuild and maintain our renewable resources to insure a plentiful supply of their products for the welfare of all people. The protection and wise

use of our forest, range and watershed lands are a part of the Nation's responsibility to its citizens.

"I am greatly concerned over the continuing heavy loss of our natural resources by forest fires, and over the fact that nine out of every ten of these fires are caused by human carelessness or thoughtlessness. It is squarely up to every American to realize that he has a definite personal responsibility in the protection of these resources.

"This is the time of the year when most people, including myself, are making hopeful plans to visit our forests.
(Turn to page 49)



Forestry delegates on White House steps. Left to right, Clint Davis, USFS; Don P. Johnston, AFA; Leo Bodine, NLMA; R. E. McArdle, USFS; James L. Madden, AFPI; Henry C. Wehde, Jr.; Advertising Council; E. W. Tinker, American Pulp & Paper Assn.; James B. Craig, AFA; George Dean, State Foresters; Dana Parkinson, USFS; Earl W. Loveridge, USFS; J. Earl Coke, Assistant Secretary of Agriculture

Washington Lookout



By ALBERT G. HALL

SENATE APPROVAL OF INCREASES IN THE APPROPRIATIONS for the Department of Agriculture strengthen the concept, so far as national forests and forestry are concerned, that this is a "business man's" administration, or rather that a business-like attitude is being taken toward the management of the forest resource. As we go to press the Senate has allowed increases that probably will be accepted by the House. Examples: a \$50,000 increase for national forest protection and management to provide for pulp timber sales in Alaska; a \$52,300 increase for basic forest research; an increase of \$2,454,000 for timber access roads to provide for salvage operations in the beetle-infested forests of northern Idaho and Montana; an increase of \$1,050,000 for activities under the Forest Pest Control Act, \$30,000 of which is for detection and appraisal surveys; and \$1,020,000 for control operations. An additional \$95,000 is allowed for white pine blister rust control on state and private lands, and \$80,000 more is provided for forest disease investigations.

REORGANIZATION OF THE DEPARTMENT OF AGRICULTURE under Reorganization Plan Number 2, became effective on June 4 following failure in both House and Senate of resolution to veto the plan. The plan provides authority for Secretary Benson to consolidate functions and activities of 16 agencies within the department, including the Forest Service, Soil Conservation Service, and the Bureau of Agriculture Economics. In hearings before House and Senate committees, Secretary Benson said he had no immediate plans for drastic changes. Rather, he hopes to study possible economies and to develop more efficient service. It is anticipated that little, if any, change will be made in the alignment of Forest Service activities.

A TOP-SIDE REORGANIZATION OF THE DEPARTMENT OF THE INTERIOR is now taking place. As reported last month, Secretary McKay has eliminated five staff divisions. In their place he is setting up a Technical Review Staff to review and advise on programs and policies relating to resources. Director of the new Technical Review Staff is John Marr, formerly city manager of Oakland, California. John Bennett, long a career employee of Interior, is the assistant director. Two members of the forestry staff of the former Division of Land Utilization, John F. Shanklin and William Endersby, are assigned to the new review staff. The former director of the Division of Land Utilization, Lee Muck, will bring his long federal land management experience to bear as staff assistant to Assistant Secretary Orme Lewis, overseer of the land management agencies of the department.

SOLUTION OF THE DIFFICULTIES ARISING FROM MINING CLAIMS on national forests and other public lands was approved by the House Committee on Interior and Insular Affairs in reporting H.R. 4983, the bill by Representative D'Ewart of Montana. His is a companion bill to S. 1930, introduced by Senator Dworshak of Idaho. The bills permit mining claimants to clear cut timber only when necessary to mining operations; to remove other timber only with the approval of the U.S. government and under sound forest management principles. The use of claims is limited to legitimate mining operations. The bills have the approval of Secretary of the Interior Douglas McKay.

(over)

FOREST CREDIT TO PRIVATE LANDOWNERS, THROUGH established financial institutions, comes a step nearer realization through two bills, S. 2069, introduced by Senator Guy Cordon of Oregon, and H.R. 5603, by Representative Harris Ellsworth, also of Oregon. The bills provide for amendment of the Federal Reserve Act so as to authorize national banking associations to make loans on forest tracts. For forest lands "properly managed in all respects," the bill would authorize two-year loans on up to 40 percent of the merchantable value. Ten-year loans would be permitted on amortized mortgages under which payments amortize the principal at ten percent. Thus, another point in The American Forestry Association's program advances a step. These bills are the culmination of many persons and organizations. Recent impetus to the proposal has been the direct result of the Western Forestry and Conservation Association and forest industry leaders in the Northwest.

FEDERAL-STATE RELATIONS, LIKEWISE, WILL BE studied with a view to reorganizing, eliminating, curtailing, or enlarging federal aids to the states. Companion bills S. 1514 and H.R. 4406 both have been favorably received by Senate and House committees and the former has passed the Senate. They provide for a commission to study the proper role of federal and state governments and the limitations of fiscal resources available to them. Likely outcome: a shifting of responsibility to the states for more of the programs now stemming from the federal government. In anticipation of this action, and supplementary to it, the Chamber of Commerce of the United States on June 10 held a state governors' conference as the opening gun in a 12-month campaign to overhaul the complex federal-state relationships.

THE PROPOSALS FOR A UNIFORM GRAZING ACT have been heard by subcommittees of both the Senate and House Committees on Interior and Insular Affairs. The subject is one difficult to approach without sentiment. Basic philosophies of land tenure and use are at stake. It is predicted that the so-called "stockmen's bill" will not become law as written. However, the chances are better now than they have been for several decades for settlement of differences between the stockmen and their federal landlords.

EDWARD WOOLLEY, NEW ADMINISTRATOR OF LAND MANAGEMENT for the Department of the Interior, is taking a critical look at all of his bureau's land management policies. In a recent public address he pointed out that the existing policies of the Bureau of Land Management are "more or less on trial." We can expect, he said, "that some of the policies which have been tried and found wanting" will be changed. Principal forestry headache of the Bureau is the management of its Oregon and California Grant Lands and Coos Bay Railway Lands which are checkerboarded among private and other federal holdings. Policies made during the past administration in regard to access to public and private timber have been sharply criticized by many erstwhile cooperators of the Bureau, while praised by others who have benefited from them.

TIMBER ACCESS ROADS TO BE BUILT BY FEDERAL FUNDS are proposed by Senator Morse of Oregon in S.J. Res. 86. His proposal calls for annual appropriations of \$30,000,000 for a period of five years. Of the annual amount, \$25,000,000 would be for the U.S. Forest Service and \$5,000,000 for lands under the jurisdiction of the Department of the Interior. In contrast to this bill is an earlier one by Representative Ellsworth of Oregon which would provide for Treasury loans to the Secretary of Agriculture, up to \$25,000,000 a year, with a maximum limitation of \$125,000,000. The loans would be repaid from receipts from timber sales. Both bills call for public hearings in the areas affected by the roads before construction may start.

COINCIDENT WITH THE DELETION BY THE HOUSE OF REPRESENTATIVES of \$2,300,000 for resource development from the Tennessee Valley Authority Appropriation Bill, Don P. Johnston, president of The American Forestry Association, urged that these funds be restored until such time as orderly provision can be made for other agencies to take over conservation work now in progress in TVA. To protect the investment that has already been made and to utilize the partially completed results of that investment, it is essential that the conservation work now in progress be continued until such time as orderly provision can be made for other agencies to take over this important work, Mr. Johnston stressed.

EDITORIAL

Is An Open Mind "Contrary to the Public Interest"?

In an open letter to the Secretary of Agriculture published in the June issue of *The Journal of Forestry*, Mr. C. M. Granger, a former assistant chief of the U.S. Forest Service, takes issue with the national forests resolution passed by AFA's Board of Directors on January 30th (see pg. 7, *AMERICAN FORESTS*, March) as having "potentialities gravely contrary to the public interest." Mr. Granger is not referring, of course, to the key section of this resolution which: 1) reaffirms the Association's long standing support of the national forests; 2) declares that the essential integrity of these forests must be preserved; 3) asserts that the AFA will vigorously oppose any attempt to dismember these holdings not consistent with the public interest. His quarrel is with that section urging an impartial state by state study of national forest boundaries in the light of progress in forest management and other pertinent considerations, including watershed protection, wildlife and recreation. Specifically, he objects to that section of the resolution that reads, "When approved by the Secretary of Agriculture, the state review should guide the future course of the Department in respect to national forest additions or eliminations."

In passing their resolution, the Directors reasoned that a study of this nature—on the ground and in the forests—would be both timely and useful. They reasoned that it would tend to strengthen the national forests by providing facts in clear focus on multiple-use management progress and the part these public holdings play in the over-all economic fabric of the several communities in which they are located. And while the Board, does not pretend to know the answers to these questions, it resolved to keep an open mind as regards the possibility that this forestry progress report might point to some readjustment of national forest boundaries.

In his open letter, Mr. Granger judges that the action of the Board was "inadvertent rather than deliberate; that the Directors did not foresee the dangers inherent in their action." These "dangers" as enumerated by the writer are that the Board now finds itself in conflict with basic principles laid down in its Program for American Forestry, and to all intents and purposes, in league with other private forestry groups that "do not seem to realize that any study which appears to contemplate even limited disposal would offer a focal point for many powerful pressures which envision a program (of liquidation) on a grand scale." Opposed to any changes, except as provided under the national forest exchange act of 1922, Mr. Granger urges the secretary to discard AFA's state study and set up an "objective study by a national commission of the need for further national forest acquisition, but with no mandate or authority to consider disposal."

Substance of Mr. Granger's comments is that he is fearful The American Forestry Association is playing with dynamite in placing trust in the states to conduct a proper study of their own lands. *AMERICAN FORESTS* disagrees with this conclusion, and while the suggestion for a national commission has real merit, is of the opinion it should be set up with the purpose of implementing studies made on the ground, in the states, and that it should consider all aspects of the case, not just a few of them.

AMERICAN FORESTS is also of the opinion studies of this nature should be encouraged, not discouraged, if the campaign toward total conservation is to succeed. This drive, in the final analysis, must rise or fall on educational processes based on facts as presented to an informed public. For public lands, whether under crown or republic, are an anachronism, and unless all groups can be educated to the intrinsic importance of multiple use in terms of all of us, raids on our national forests are likely to increase, rather than diminish, in intensity as the pressures of population and other pressures continue to mount.

For example, in recent weeks the AFA was helpful in checkmating the latest cold war raid by a special group—the grazers in this case. Their drive for what amounted to vested rights on national forests was rebuffed as similar ill-advised raids will be rebuffed, but one wonders what, if anything, was actually settled. How much more preferable, on the other hand, is the course adopted by key timber leaders in recommending a state-by-state study of national forest lands—an educational-type study that would examine all aspects of all questions in terms of what is best for everybody.

Yet, this is the type of educational approach that Mr. Granger seems determined to thwart at all costs. And in trying to thwart it he inadvertently resorts to an old and familiar type of fear philosophy that warrants careful scrutiny in the light of present-day forestry conditions.

Mr. Granger is a distinguished product of the federal branch of forestry that has contributed so much to the nation in the last half century. Nevertheless, times change, and the question now arises as to whether a cocked rifle type of fear philosophy so effective in the past is the final answer in terms of today's forestry needs. In brief, is this the best the forestry profession can do in 1953? This is a question forestry must decide. Meanwhile *AMERICAN FORESTS* will not be counselled by its fears in recommending studies it considers sound nor swerve from its intention of keeping an open mind on all facts affecting present-day forestry as they may be brought to light.

Scientists can now separate the bark from living trees by the use of a toxic chemical, a process that eliminates drudgery in the woods

Chemical debarking is something new in forest research. Does it work? An 80-man investigation got affirmative answers recently in Maine

By JAMES B. CRAIG



Science on the Stump



Chemical applied to girdle starts the debarking process in motion. Easy and quick, the new practice may give good forestry a big lift



Un Maine last month, an 80-man investigating team—scientists, foresters, fish and game experts, outdoor writers and editors—explored the findings of a two-year research project that may revolutionize small woodland management in the United States.

What this group of investigators saw was a new method of chemically debarking trees developed at the Kingsbury "proving grounds" of the Penobscot Chemical and Fibre Company, one of 13-sponsoring pulp and paper firms that inaugurated the research project two years ago and which have set up wide-spread test plots for intensive study.

Chemical debarking, briefly, is the art of separating the bark from living trees by applying a toxic chemical to a bark girdle at the base of the tree. Once treated, trees almost peel themselves right on the stump, thereby eliminating much drudgery in the woods, including unsnarling hang-ups in felling, slash disposal problems and the hated and arduous task of working all day in bug-infested woods to hand-peel a meager two cords of wood per man.

Its significance nationally? Just this. Chemical debarking may prove the gimmick that will encourage upwards of three million small woodland owners in the nation—many of them farmers—to start practicing good forestry. Chemical debarking is quick and it is clean. With good management would come greater growth. And since the new practice eliminates the necessity of hand-peeling logs in the relatively short

sap season between mid-May and August, a more even flow of wood to the mills would result, present peaks and valleys in production would be ironed out, and woodland owners would enjoy greater profits.

Wildlife specialists also have a stake in the new process. If controllable, wide general use of the practice will be spelled out in terms of increased browse for wildlife, since managed woodlands mean more food for birds and animals. And while the use of toxic chemicals on farms is nothing new in the United States, wildlife experts view with approval the industry's avowed intention of completely eliminating any hazard whatsoever to wildlife that might result from the application of the chemical—sodium arsenite in this case—to trees. This altruistic attitude and research mindedness on the part of industry is winning favorable attention.

To the uninitiated, chemically debarked trees might prove something of a shock at first glance. The outdoor enthusiast encountering the new process for the first time—let's say he's a New Yorker enjoying a brisk tramp through the woods while on vacation to Maine—sees what appears to be a ragamuffin stand of trees in various stages of undress. On some, the bark hangs in tatters. On others, it has stripped off cleanly leaving the trees naked and gleaming in the sunlight. When closer inspection reveals that this scientific strip tease is accomplished with chemicals he may wince—and understandably too—at what he re-

gards as unwarranted interference with nature and shudder for the safety of any wildlife in the area.

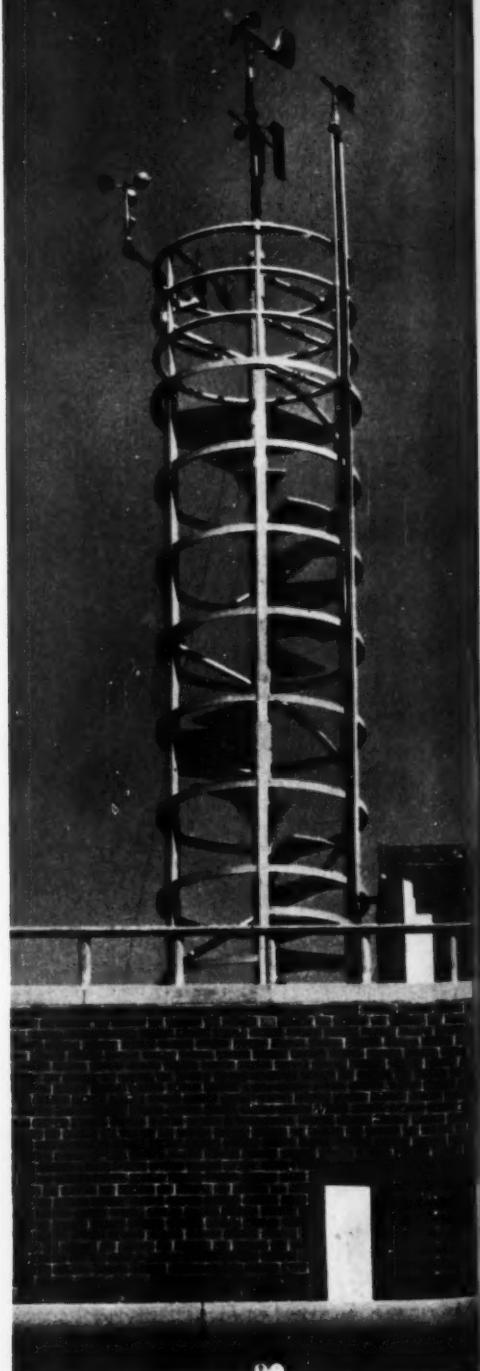
But if the visitor is both curious by nature and keen of eye, further exploration will show that, under a careful system of selection, only the larger, more mature trees have been chemically treated—that the healthy younger beeches, red maples and softwoods are pushing their topmost branches into sunlight formerly monopolized by the girdled oldsters. He will search in vain for dead animals on that forest carpet, but will discover where deer have nibbled at tender young clover and dwarf dogwood shoots growing in clearings where the earth has been enriched by decaying bark mulch. As a partridge soars up like a rocket almost at his elbow and with this whole woodland bursting with robust young growth, the visitor makes the quiet discovery that this is no dying forest as he first imagined; it is a growing forest and a thing of vigorous beauty.

This, he reflects, is something far different from the somber quietude of primitive timberlands where the trees are thicker, the growth more static, the browse scarcer and where the forest floor is in continuous shadow due to the overhead canopy thrusting and elbowing its way to the sunlight. One is archaic while the other is youth. In a forestry sense it is the difference between an old man's home on the one hand and a lively, well-managed classroom on the other. And as he pauses by the

(Turn to page 32)



The Team—Key men on the Chemical Debarking Research Project sponsored by 13 leading pulp and paper firms are, left to right, Dr. Edwin C. Jahn, project leader; Dr. Hugh Wilcox; Dr. Felix J. Czabator; and Dr. William L. Webb. All are associated with the College of Forestry, State University of New York. Many of the experiments in connection with wildlife have been conducted at the college's Huntington Wildlife Forest located near Newcomb.

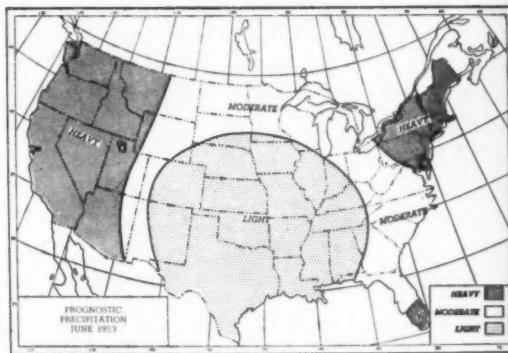


Weather forecasting instruments atop the Weather Bureau headquarters in Washington, D. C. symbolize Bureau's watchful fire prevention role

M. L. Blanc, chief meteorologist at Weather Bureau headquarters, takes A. A. Brown of the Forest Service on a "Cook's tour" of building

With the threat of forest fires hanging over much of the nation, those responsible for the protection of our timber resources are looking to the U. S. Weather Bureau for the indispensable help of its "Fire-Weather Warning Service"

By KEITH R. McCARTHY



THE state forester bounced his jeep into the lengthening rectangle of shade cast eastward by Martin's tool shed. He gunned the motor before flipping the ignition key to off position, dialed the tuning knobs of a panel radio, then sat back and waited; not anxiously, but with an attitude of quiet, almost abject, resignation. Out of the radio's speaker came a by now familiar voice. It was the same voice the forester had listened to yesterday, and the day before, and this same voice was intoning an identical message. The voice was saying tomorrow's weather would be just like today's—hot and dry.

The voice also told the forester, though not in so many words, that he would have to close the woods again tomorrow. With the weather staying hot and dry the danger of forest fires would remain critical. Translated into the forester's responsibility this meant maximum security measures—no man-made activity in the woods—for the third day in a row. Eyes focused on a wisp of steam swirling upward from the jeep's radiator, the forester did a little figuring. Ironic, he mused, that a \$5000-a-year state servant should be making a million-dollar decision on the basis of a few words that he, along with thousands of other people, had just heard on the radio.

What the forester was telling himself in those few moments of introspection before issuing the closure order was that it was costing the lumbering and allied industries in his state \$350,000 for every day they couldn't operate in the woods. Three days, now, and that added up to almost a million dollars in lost working time, all on his sayso. It wasn't easy, this making decisions involving somebody else's money. But what choice did he have? If he didn't close the woods he was *really* playing with fire. The 1500 human lives

consumed at Peshtigo and the ten billion board feet of timber burned on the Tillamook were spectral reminders of forest fire gambles taken and lost.

This scene, with variations, is re-enacted every day in almost every state in the Union during the late spring, summer and early autumn months—what might roughly be called the fire season. If it isn't a forester closing down an area to logging, it's a game warden posting the forests to hunters, a state governor declaring a region out of bounds for vacationists, or a U. S. Forest Service or other federal employee taking similar precautionary measures. These are important decisions. Though usually formally executed by just one man, they affect the convenience of a multitude of people, often involve huge sums of money, and they must be made *now*. In many ways they are the most difficult and important decisions made regarding the protection of our forest resources.

When a custodian charged with this responsibility—deciding whether the woods will be open or closed—makes such a move he has just one thing to go on—the weather, or rather a prediction of what the weather is likely to be. This he gets in the form of periodic forecasts from the U. S. Weather Bureau, and during the fire season this is mighty significant information.

Take our mythical state forester of a few paragraphs back, for example. His order closing the woods to logging was based entirely on a prognosis of the next day's weather furnished him by the Weather Bureau under its Fire Weather Warning Service. This service, in operation for about a quarter of a century, has become an indispensable aid to forest fire protection programs on local, state and federal levels. A specialized type of forecasting, it is a major

factor in keeping green the 465 million acres developed as national parks and as national, state, and county forests or commercial timber lands.

Besides governing logging, hunting and recreation activities, these fire weather forecasts play a key role in determining the deployment of fire-fighting forces—men and machines, tools and supplies. For instance, on some days when visibility is expected to be good, and conditions of humidity, temperature and wind in the forest will be such that fires will not start easily, or spread quickly, only a few of the lookout towers need be manned. On those days the crews can safely be used in road building and other forms of forest improvement work. The building of roads includes clearing fire-breaks to help prevent spread of fire and clearing trails for rapid transport of fire fighters and equipment. Fallen trees, dead trees, and slash are cleared out to reduce fire danger. In these and many other ways the crews which are released by safe-weather forecasts are used to increase fire safety.

On other days the weather forecasters warn of danger. They expect humidity to be low on forests already dry from lack of rain. Temperatures will be high. There will be wind to whip small fires to roaring infernos, and to send flames across openings and through the tops of trees. On such days lookout towers are fully manned and are supplemented by airplane patrols. Fire crews are assembled in force, located strategically for initial attack. At such times railroads take special precautions to prevent locomotive sparks from escaping. Many of these are expensive precautions—troublesome and annoying to many—but they are necessary and are accepted ungrudgingly by those who know the

terrors and hardships, the dangers and losses from forest fires.

The U. S. Weather Bureau has, at present, fire weather districts in the West, Northwest, Lake states, Northeast and in North Carolina. Centers, 12 in number, for these districts are located at Seattle and Olympia in Washington; Portland and Pendleton in Oregon; Mt. Shasta, San Francisco and Los Angeles in California; Boise, Idaho; Missoula, Montana; Chicago, Illinois; Boston, Massachusetts; and Asheville, North Carolina. Each of these centers, while specializing in the needs of agencies and in-

dividuals concerned with forest fire prevention and suppression, also performs regular weather information functions.

Service is a very appropriate word in describing the fire weather warning phase of the Weather Bureau's work. Actually, the groundwork for this service is laid even before the fire season begins. It is standard pre-season practice for the meteorologist in charge of a fire weather center to contact those who will be using the service to determine just what will be needed once the fire season gets underway. This is a personal contact

on the user level and is representative of the cooperation that characterizes the Weather Bureau's dealings with agencies and individuals engaged in forest fire prevention and suppression activities. Worked out in this initial "strategy" meeting are technical details, methods of communication, what local areas are likely to need the most service, what personnel is available, how often forecasts are to be issued, how long the fire season will last, and other stratagems.

The Weather Bureau issues a variety of forecasts during the fire weather season. These include daily, five-day, 30-day, revised and special predictions. The regular daily forecasts cover a 36-hour period, with primary emphasis on the first 12 hours beginning in the afternoon of the day the forecast is issued. Because of the limited period of time covered these are the backbone of the fire weather predicting service. The extended, or five-day and 30-day forecasts, cover broader areas and their degree of local interpretation is less accurate. Weather Bureau officials regard any forecast covering a period of more than 48 hours as only "the most intelligent guess we can make."

The revised forecasts, as the name suggests, qualify the regular forecasts in light of changed conditions after the original predictions were issued. These may be issued often or seldom, depending on the turbulence or tranquility of the upper air masses and other factors that influence the behavior of the weather. Special forecasts include the same elements as the regular prognoses, but are more specific. Narrower in scope, they concentrate on what conditions will be in local areas and at exactly what time, both night and day. Because of their essentially local nature these forecasts are especially helpful to foresters and other custodians of our timber resources in determining when to grant slash and trash burning permits, open a limited area to recreationists or logging activity, or to deploy personnel for potentially explosive conditions.

Factors included in fire weather forecasts are humidity, wind velocity, wind direction, temperature, cloud cover and precipitation. From this list of adjectives the forester, or other person charged with the safety of the forest, determines a burning index. The index simply is a relative

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Mobile fire weather units have proved a big help in combatting "going fires." Weather Bureau has eight of these in operation

These alto cumulus and other clouds portend the rain drops that are more important to fire prevention than all of man's efforts



HE'S MIGHTY GOOD WITH HIS "WOODS"





During the past three or four years the western skies have been literally full of Indians—Apaches, Zunis, Hopis, Navajos—flying to all points of the compass to lend a helping hand in fighting forest fires. The Indians like to fly and as fire fighters they're just about tops

THE BOSS of the fire camp in northern Idaho pricked up his ears. From the area occupied by the crew of Apache Indian fire fighters, flown in from New Mexico, came a strange sound. Often the Indians sang around their camp fire of an evening if they happened to be in camp; now the voices had an urgent chanting cadence accompanied by a rhythmic booming sound.

His curiosity aroused, he strolled over to the group. The Indians sat crosslegged around the fire, their eyes turned toward the stars as they chanted. One of them knelt before a drum, improvised from a lard can covered with a tightly stretched piece of inner tube, and he strummed on it in time with the chant.

The boss turned to Ranger Paul Wild, of the Lincoln National Forest in New Mexico, who had brought the Indians in, all the way from their reservation near the Mexican border to this forest fire on the Canadian line. "What's all this mean?" he inquired.

"It's a rain chant," Wild said.

"Well, we could sure use some rain, all right. But why the Indians' interest in it, all of a sudden?"

Wild grinned. "They're getting a





The Indian crews have a stubborn conviction: where they build a fire line that is where the fire has got to stop

little bored, I guess. You see, we came on this fire two weeks ago. Everything was fine so long as there was plenty of fire to fight. Now the fire's under control and they want to be moving on to another one."

The Indians were the famous "Red Hats" from the Mescalero Apache Indian Reservation. Trained first by the Indian Service to fight fires on their own reservation, they were later requisitioned by the Forest Service, in emergencies, on the adjoining Lincoln National Forest. They adopted the name "Red Hats" from the color of the safety "hard hats" furnished them for fire fighting.

Then one summer the West Coast had one of its critical fire "blow-ups." Outside help was needed, and badly. As usual, other national forest regions sent all the supervisory personnel they could spare from their own thin ranks. But it was not enough. The crying need was for some skilled fire fighting labor; men who could be relied on to do the right thing at the right time without being told, who would stand fast in the face of danger — yet take care of themselves if worst came to worst.

Someone thought of the Red Hats. They filled that prescription, all right. But would they consent to

leave their home country? Would they fly in an airplane? How would they react to a strange environment, to unaccustomed food, to supervision ignorant of Indian custom and psychology?

Forest Supervisor Earl Moore drove over to the Indian Agency to find out. The Indian Service was very willing; the Indians could use the extra cash to good advantage. Following established protocol, they called in the tribal chiefs and held a council. The chiefs in turn talked with the Red Hats. The result was that 24 of them — a plane load — agreed to go. None had ever been aboard a plane, most had never even seen one at very close range.

All hands kept their fingers crossed. But they needn't have worried. The Indians took the plane ride in stride. They created their own social environment in fire camps — and how they could fight fire! Whether a forest fire dredges up some atavistic impulse, or whether the Indians simply enjoy pitting their courage and endurance against a worthy foe, no one has so far figured out. But fire fighting is their meat.

The Forest Service realized it had stumbled into a veritable gold mine. In the Southwest there are thou-

sands of able-bodied Indians whose economic condition has long been a matter of concern to the authorities. The economic possibilities of their reservations are strictly limited and their traditions and mode of life unfit them for extensive assimilation into outside industry. The foresters began organizing them into harmonious groups and giving them basic training in fire fighting.

During the past three or four years the western skies have been literally full of Indians — Apaches, Zunis, Hopis, Navajos — flying to all points of the compass to lend a helping hand.

And what a hand it has proved to be! The Indian crews have a stubborn conviction that where they build a fire line, that's where the fire has got to stop. And it generally does, especially if there are enough felling crews to follow them and throw the snags that may otherwise fall burning across their line. It takes from three to four such crews with power saws to keep up with one Indian line-building crew.

The Indians have tremendous endurance. And most important, they are free from panic. Ranger George Proctor, of the Cibola National Forest also in New Mexico, tells a tale of a crew of Zuni Indians he had on

FIRE IS THEIR MEAT

By EDGAR PERRY

Their natural instincts, willingness to work, and endurance make Indians superior forest fire fighters. Cooperative and easy to handle, they have saved the day on many serious fires from Arizona to Washington



a bad fire in the Northwest. One day while building line they discovered that the fire was coming at them through a narrow saddle filled with down timber. The saddle was creating a draft that urged the flames on with added ferocity. The sector boss came running up to warn the Indians to get out of there—but quick! "You couldn't hold that fire here anyway," he shouted above the roar of the devouring flames.

The Indian crew leader spoke briefly with the nearest of the men. "I guess we hold it here," he said calmly.

And hold it they did! Hastily they backfired from a sketchily cleared line, but the advancing fire was already close and burning embers were flying thick and fast across it. With the agility of tennis players they dodged here and there, slapping out one spot fire with the back of a shovel, throwing a spadeful of

earth on another. The heat and smoke became almost unbearable, but it never seemed to occur to them that the spot fires might consolidate beyond them in spite of their best efforts, and thus doom them to a particularly horrible form of extinction.

The Indian fire fighters have other qualities which endear them to the men whose summer-long job it is to swat blazes in the "big fire" country. One of them is their phenomenally low accident and sickness rate. One of the nightmares of the fire boss' life is the inexperienced man who gets hurt on the line or sick in camp and has to be gotten out to civilization. The Indian knows all the tricks of taking care of himself in the wilds, and he comes to the job in the kind of clothing that is adapted to the rigors of fire fighting. It's the kind he wears as a matter of custom.

And while the Indian crews uniformly stow away a lot of food, they never actually over-eat. You never hear of the stomach and intestinal disorders among them which are so common to the men recruited from city life and suddenly thrown into the strenuous exertion of the fire line.

Another highly useful characteristic of the Indians is a sure sense of direction and topography. They are never lost. White crews going off duty may have to follow the tortuous windings of the fire line to get back to camp, and may get lost even then. But not the Indians. They simply turn off into the woods on a bee line, and hit camp with all the accuracy of a wolf returning to its den.

The same is true in moving from one sector of the fire to another. A topographic map may mean little to them, but if the fire boss can draw a simple diagram on the ground with a stick and point in the right direction, he can rely on finding the Indians there when he goes to look for them.

And find them at work, too. It never seems to occur to them to take advantage of any opportunity to loaf. That's hard to reconcile with the popular "lazy Indian" concept, but the fact of the matter is, Indians have never really been lazy. They have declined to become exercised over some things considered important by their white critics, but any time an Indian has anything to do which seems important to him, a corn-belt farmer is lackadaisical by comparison. Witness the exhausting day-long dances put on by every pueblo to invoke the blessings of the gods on the newly planted crops.

Ranger Proctor, mentioned earlier, once took another crew — of Zunis this time — to a big fire on the San Bernardino National Forest in California. They arrived at the fire camp after a night-long trip from their pueblo in northern New Mexico and at the first peep of day went out on the line. The fire spread so fast they could not be relieved. They worked right on through until the following morning — 24 straight hours of the most grueling toil that falls to the lot of man. Finally relieved, they went in to camp, had breakfast and bedded down. But they had hardly gotten to sleep when the fire "blew up" again. The camp boss, very apologetically you may be sure, asked if they could pos-

The Indian's sure sense of direction and topography is a valuable characteristic. A fire boss can rely on them to be where they are supposed to be

The Indian knows all the tricks of taking care of himself in the wilds. He comes to the job in the kind of clothing that is adapted to fire fighting



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Bank of the Manhattan Co. drawing

Boring logs to make water pipes with crude hand-operated auger bit. Time—early 1800's

ALMOST any sharp chip of flint, or bone can be used to make a hole, and some of the earliest drills we have found were stubby pieces of flint shaped like arrow heads. Held between the thumb and forefinger they could be twisted around and around to make a hole.

However, very early nearly all races all over the world—from the Egyptians to the Pueblo Indians—learned to make a drill in which a stick holding the drill point was twirled back and forth, sometimes between the palms of the hands, and sometimes by means of a strap or cord looped once around the stick, and fastened to a bow similar to that used to shoot arrows.

There are many variations of this, the "fiddle bow drill," the "strap drill," the "pump drill," etc. Such drills are still used in many parts of the world.

In operation, the upper end of the stick is held steady and turns in a socket in a little wooden block the worker holds in his teeth. And sometimes a carpenter uses his toes as a vice to hold the work, leaving one hand free to steady the top of the stick.

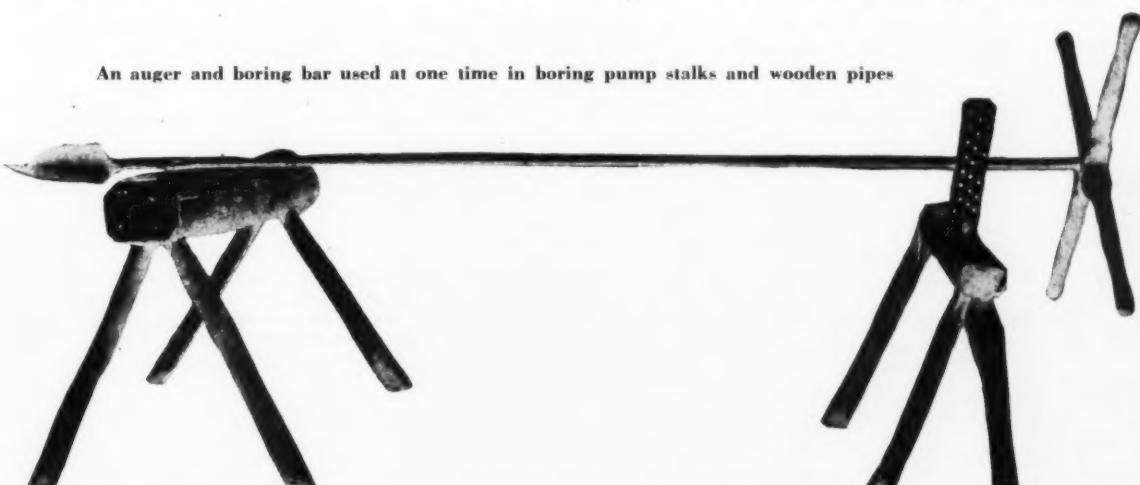
Obviously these drills, which turn first in one direction and then the other work by friction—by "chewing," or scraping deeper and deeper into the wood. They in no way resemble the accurate auger bits we

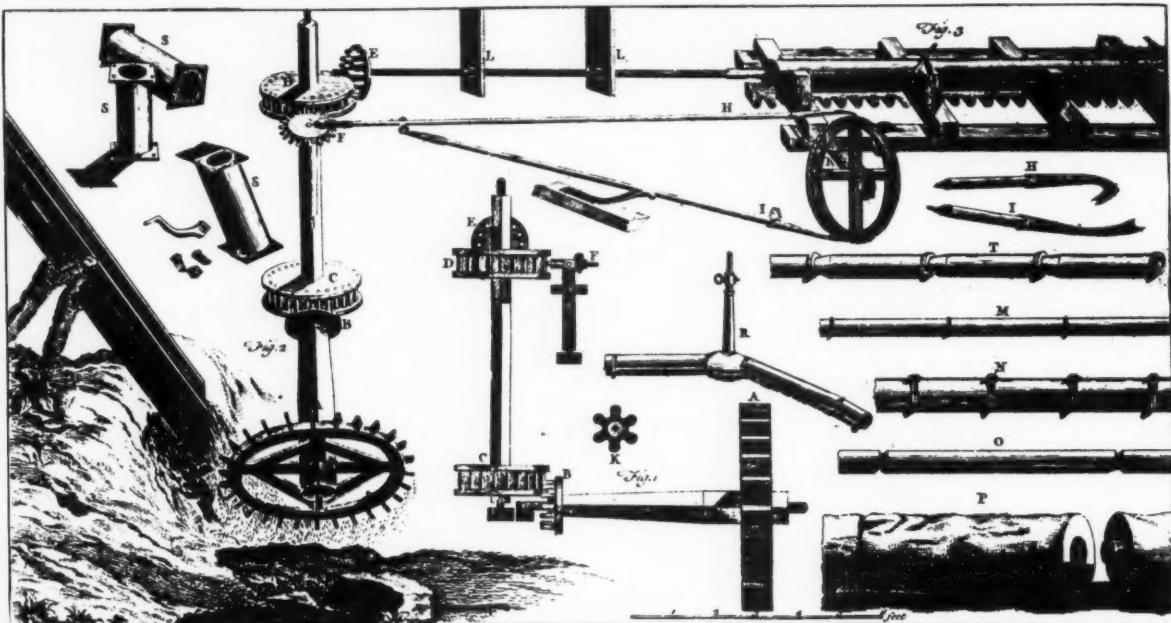
have today, which must always turn in the same direction to cut a hole.

The North American Indians used bow and pump drills, but for making holes in the stems of their ceremonial pipes, they had an entirely different system. The pipe maker removed the inside pith from a short piece of reed and filled it with sand and water. Then he twirled the reed round and round between his palms. The sand and water oozing out the bottom of the reed acted as a cutting edge which soon made a deep, circular hole. It also left a central core—but this was easily broken off, leaving a smooth hole of good size.

A predecessor of the brace and bit we use today appears in many draw-

An auger and boring bar used at one time in boring pump stalks and wooden pipes





In 1754 the "Universal Magazine" of London ran this fanciful plan of a machine to drill holes in wooden water pipes, by water power. It was never constructed.

ings and paintings 400 to 500 years old, but the brace appears to have been merely a solid piece of wood shaped like our modern tools, and the "bit" looks like a screw driver blade.

Big wood drilling equipment was very important in cities in Europe and America many hundreds of years ago, for a reason you'd never suspect today. The pipes which carried water under the streets were made of lengths of wooden logs — some about 8 feet long — in which a hole from 3 to 6 inches in diameter had been bored, usually by hand, with giant two-man augers with shafts five and six feet long. To make it easier drilling was done from each end.

These log pipes of oak, pine, or elm were tapered, or fitted at one end, and the hole at the other was enlarged, so that they fitted together tightly. Sometimes cement or tar were used to prevent leaks. Surprisingly, these log pipes didn't decay while they were in use, and they worked very well. London had 400 miles of such pipes which gave service for over 218 years, and Boston first installed log water mains in 1652. Philadelphia, New York and other cities followed shortly thereafter. Pipes dug up in Portsmouth, N. H. were found as good as new after 100 years of service.

Such water mains were important in fighting fires, and soon hydrants appeared on city streets. However, they weren't very numerous, and the leather hoses in use weren't very long, so firemen often dug down to the water main — about 18 inches below the road — and bored a hole in the log pipe to get water. Later these holes were closed with large wooden plugs—and it is from these, many believe, that we get the term "fire plug."

Modern wood drilling tools are of many styles and types.

An *awl*, the smallest such tool, doesn't actually cut a hole, but makes one by pushing aside, or dis-

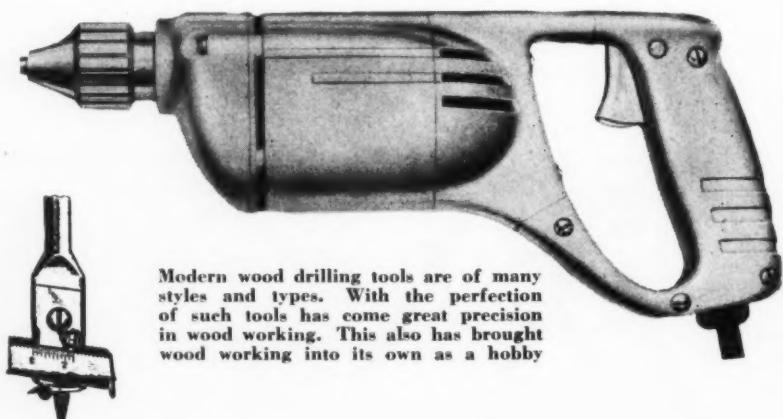
placing the fibers in the wood being worked.

A *gimlet* is a small drilling tool with a screw head which draws it into the wood, and a long cutting blade. It is operated by one hand.

An *auger bit* is somewhat like a gimlet, but much bigger and is usually used in a brace. It not only has a screw head which forces it into the wood, but a sharpened cutting lip which makes a clean, smooth hole, and a spiral construction which keeps withdrawing the chips as the bit enters the wood.

For hand precision work, such tools, for which there are a large

(Turn to page 37)



Modern wood drilling tools are of many styles and types. With the perfection of such tools has come great precision in wood working. This also has brought wood working into its own as a hobby.



MANAGING YOUR WOODLAND

...In Missouri

Consulting The Farm Forester

RUSSELL KRAUSE, operator of a 535-acre farm in Gasconade County, Missouri, decided in 1951 that he would like to realize more from his 270 acres of timber than he had in the past. The timbered area of his farm is mostly rough hilly land, not suited to cultivation.

Although all his fence posts, fuel-wood, and building lumber used on the farm had been obtained from the woods, Russell believed he was not getting the full potential from his woodlot. He knew the timber protected the hills and valleys below from erosion and provided a home for numerous species of wildlife; but he wanted a cash crop and at the

WOODLOT CONFERENCE—A national farm woodlot conference was held June 25-26 in Chicago. Called by American Forests Products Industries, it brought farm forestry into focus for full examination and review. Full details of the meeting will be carried in the August issue of American Forests.

same time did not want to deplete his woodland.

To help solve this problem, the local farm forester was consulted. The forester made a preliminary survey and a timber cruise, pointing out that the woodland was understocked, due mainly to past practices of burning and grazing. He explained that when young trees are burned or eaten, they cannot grow up to become lumber producers. The forester also pointed out large, mature and over-mature trees which should be harvested, not only to save the sound wood in them, but to give adequate growing space to young, thrifty trees.

After the cruise was made, a com-

By DALE L. SHAW

plete management plan was prepared by the forester. Three basic practices were recommended for immediate action: stop all burning, control grazing, and initiate a cutting program which would remove mature and over-mature trees. The cruise had revealed that 64,000 board feet of white oak and black oak should be harvested as soon as possible. The remaining 240,000 feet would serve as reserve and growing stock.

Russell was advised to do his own woods work if possible. This would not only greatly increase his returns and provide winter employment, but would insure that the job would be done right.

The farm forester helped Russell select the trees to be cut, and a portable mill was moved to the property to saw the logs into lumber. Con-

tracts to supply lumber to various markets were obtained, and records of costs and returns were kept.

On 23,000 feet supplied to two markets during the winter of 1952-53, gross receipts amounted to \$1500, with a net of \$884. For each hour spent in carrying out this operation, Russell netted \$2.64. Other products than lumber, cut from the harvest trees, include fence posts, fuelwood, walnut logs, and stave bolts.

Russell is a member of the Tree Farms system. This spring he started a plantation in an abandoned five-acre field by planting 1000 shortleaf pines. Future plans call for the entire field to be planted in this manner. He plans to be a farmer who is providing himself with winter employment, a cash income, an improved woodlot and is, at the same time, increasing the value of his property.

Woodlot owners usually are advised to do their own woods work. This increases returns, provides winter employment, insures a good job

Missouri Conservation Commission photo





Forestry in the

When Congress will act on Hawaiian statehood is debatable. But meanwhile the Islands push ahead with a scientific forestry program

THOUGH the names of intrepid sailing men and explorers like Captain James Cook and Lord George Vancouver seldom have been associated with forestry, these two 18th Century English navigators were in fact responsible, unwittingly, of course, and more than 150 years ago, for circumstances that led to the application of scientific management and protection principles to the forests of the Hawaiian Islands.

The discovery of the "Sandwich Islands" by Captain Cook in 1778, the visit of Lord Vancouver in 1798, and later visits of sailing ships in the Pacific trade brought a radical change in forest influence, not only through the commercial and agricultural development which gradually followed, but through the development of wild animal life.

In 1778 the eight main islands of what is now the Territory of Hawaii contained about four million acres of land. Aside from the excessively dry sections of the leeward sides and the higher mountain areas above 8000 feet elevation, tree growth covered the greater part of the Islands, probably more than three million acres. These areas ranged from the

wet, luxuriant, Ohia (*Metrosideros* sp.) type rain forests of the windward slopes, from sea level to 6000 feet elevation, through the higher mountain Mamane (*Sophora* sp.) type forest, from 6000 to 8000 feet elevation, and the dryer Wiliwili (*Erythrina* sp.) type tree cover of the leeward areas from sea level to three or four thousand feet.

While there was abundant bird life, there appears to have been no animal life other than the small Hawaiian mouse and the pig, the latter brought in by the early Polynesian settlers in the Islands. The arrival of the Polynesian voyageurs brought little change to the Islands. They settled along or near the coast, developed relatively small areas for taro patches and other crops, and their limited forest use of loa logs for canoes and calabashes and other species for house frames, tools, and other items was barely noticeable.

A disruption of this pattern began in 1798 when Lord Vancouver made a present of a few head of cattle, sheep and goats to King Kamehameha. The king was so impressed with the arrival of these meat-producing animals, when fish and pig



William Crosby, chief forester for Hawaiian Islands

After decades of misuse, Hawaii's forests now are under scientific protection



The silversword, Island plant so named because of color and blade-like stalks



The 49th State

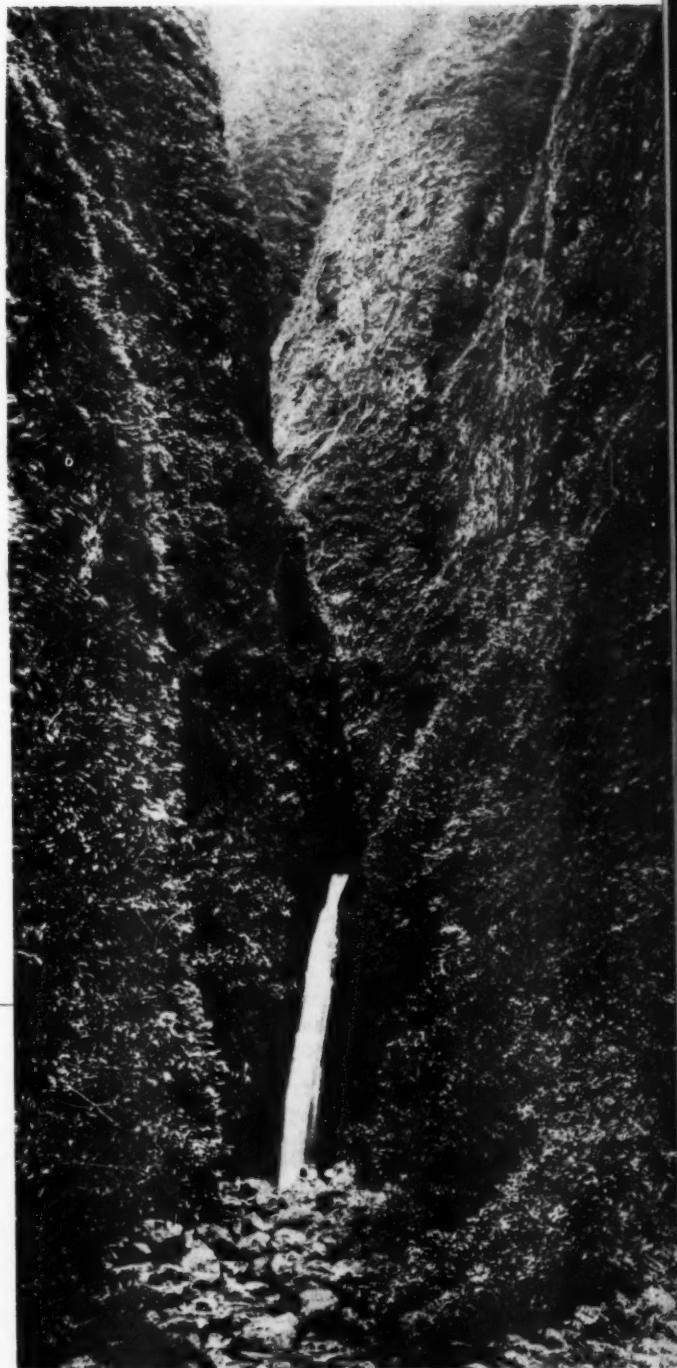


By WILLIAM CROSBY

had been the only nonvegetable food available, that he placed a royal kapu on the animals and they were allowed to roam and multiply at will, soon running wild in steadily increasing numbers over all the Islands. The native forest growth, developing under conditions of normally high rainfall and no animal disturbance, was shallow-rooted and quickly showed unfavorable reaction to the increasing numbers of sharp-hooved animals roaming and browsing through them. Early travelers of the 1840's and '50's frequently mentioned the large areas of dead and dying forest observed during their trips over the Islands. In all too many cases this destruction occurred on the steeper slopes, leading to rapid runoff of the rainfall with accompanying severe erosion. On the windward slopes subject to the steady and often strong northeast Trade Winds, the erosion problem was often aggravated.

The introduction of sugarcane to Hawaii and development of plantation operations, with the constant demand for more and more water, brought a growing realization of the dependence of the welfare of the

Normally wet conditions make fire control minor problem in forests of Hawaii



Though more famous for its fine beaches, Hawaii also has some beautiful mountain and forest scenery at the higher elevations

country on its water supply and gradual association of indications of a diminishing supply of water with the diminishing forest areas. One writer, commenting on the old plantation started by Captain McKee at Ulupalakua on the Kula slopes of Maui, stated that he could remember as a boy how the cloud belt that forms almost daily on the upper mountain slopes had regularly produced showers sufficient to keep streams running and good growth of cane on the plantation; but with the steady killing off of the forest on these slopes, the showers had become few and far between, the streams seldom showed any flow and the plantation had to be abandoned and turned into a ranch.

The first legal action toward control and protection of forest areas, as a result of this growing awareness of their value, was taken by the legislative assembly of 1876 in a law approved by King Kalakaua on September 19, stating: "Whereas, It is an established fact that the destruction of forests in any country tends to diminish the supply of water, therefore, Be It Enacted by the King and the Legislative Assembly of the Hawaiian Islands, in the Legislature of the Kingdom assembled: . . ."

This act authorized the Minister of the Interior "to set apart and cause to be protected from damage by trespass of animals or otherwise, such woods and forest lands, the property of the government, as may in his opinion be best suited for the protection of water sources, and the supply of timber and fruit trees,

cabinet woods and valuable shrubbery" and "to appoint some competent person as superintendent of woods and forests" with authority to enforce rules and regulations for forest protection and to have charge of construction of fences and barriers required for their protection.

Apparently no funds were provided for carrying out the terms of this law and it serves chiefly as an indication of the increasing awareness of the forest problem facing the country, but in 1892 the legislative assembly passed a law approved by Queen Lilioukalani, setting up a Bureau of Agriculture and Forestry with authority to appoint a suitable person as commissioner to "receive such salary as may be set apart by the Bureau out of any money appropriated for forests and nurseries." Under this law a government nursery was started in Honolulu on South King Street for the production and distribution of forest, fruit and ornamental tree stock to interested parties wishing to plant their lands; government tree planting was started on Tantalus Heights and in Nuuanu Valley back of Honolulu, forming part of the denuded watershed of the city, and greater interest and action stirred in studying and recommending areas to be set up on a permanent basis as forest watersheds.

When the Treaty of Annexation between the United States and the Republic of Hawaii was signed in 1898 and Congress passed the Organic Act providing for a territorial government, the then existing laws

governing forestry were continued in force under a Commissioner of Agriculture and Forestry. However, the growing realization of need and pressure for a more comprehensive law and its administration led the territorial legislature of 1903 to pass a law providing for a Board of Commissioners of Agriculture and Forestry of five members with greatly increased powers which, with limited amendments and additions as found desirable, is the basic forest law of the Territory today. This law provided for a superintendent of forestry (later changed to territorial forester), who must be a technically-trained forester and one preferably with experience in tropical forestry work.

As soon as it was appointed and organized, the Board set about finding a man for this position and, on recommendation of Gifford Pinchot, chief forester of the United States Forest Service, Mr. Ralph S. Hosmer, a graduate of Yale Forest School with several years' experience in soil conservation and forestry work, was appointed and arrived in Honolulu on January 13, 1904, to start work.

The law of 1903 also provided for the setting apart of government-owned lands as forest reserves by the governor on advice and approval of the Board of Commissioners of Agriculture and Forestry and for the surrender of the care, custody and control of private lands to the Board as a forest reservation for one or more years or forever. Private lands so surrendered were exempted from taxation during the period of surrender. A separate section under the tax laws carried over from an Act of 1892 under Queen Lilioukalani provided for annual tax exemptions on privately-owned forest land upon submission of a sworn statement by the owner to the tax assessor that he had the land properly fenced for the exclusion of livestock and would, during the ensuing year, allow no entry of stock or not make any other use of the land or its products.

Both of these tax exemption provisions still stand on the books today but, while some 100,000 acres out of 368,000 acres of privately-owned lands within forest reserve boundaries are now under long-term surrender agreements to the Board, the majority of private owners still hesitate to give up control of their lands for an extended period and make annual application for tax exemption.

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ISLAND AND FOREST RESERVE AREAS

Island	Total Area acres	FOREST RESERVE AREAS				% Area Reserved
		No.	Gov't Land acres	Private Land acres	Total acres	
Niihau	46,080	—	—	—	—	—
Kauai	355,200	9	93,094	69,477	162,561	45.7
Oahu	386,560	20	38,590	82,503	121,093	31.4
Molokai	166,400	1	20,840	25,607	46,447	27.9
Maui	465,920	8	103,534	57,885	161,419	34.6
Lanai	90,240	1	—	6,150	6,150	6.8
Kahoolawe*	28,800	—	—	—	—	—
Hawaii	2,579,200	25	441,148	126,376	567,524	22.0
TOTAL	4,118,400	64	697,196	367,998	1,065,194	25.6

*This smallest of the main Islands was early denuded of its forest cover and, because of the prevailing dry conditions and strong winds blowing across, carrying great clouds of dust for miles to sea, it has been called the Island that was blown away. Some two thirds of the Island of Kahoolawe is completely barren subsoil and rock and various attempts to plant trees under the most favorable remaining conditions have proved futile.



Resettling the Forester's Friend

NO TREE planting device yet invented, or even likely to be invented, can match the skill and efficiency of those sprightly members of the rodent family that range over much of the United States and Canada under the common names of the red squirrel and the gray squirrel. Both are so familiar to almost everyone that it seems hardly necessary to describe them here, except to say that the gray squirrel also has a black phase—melanistic sisters and brothers born in litters that otherwise are of ordinary gray color.

Because they normally like to live in trees, and their principal food is the nuts, acorns, cones and seeds of the forests, squirrels in their natural habitat are friends of man and par-

By E. JOHN LONG

ticularly of the woodsman. Their thrifty habit of burying in the forest floor the nuts or cones they cannot eat or carry to their burrows, and then occasionally forgetting all about them, replenishes the woods and sets new trees to growing, renewing the cycle of forest life in areas that man would have difficulty in penetrating.

The squirrel is a friendly little creature, not too afraid of man. As

metropolitan areas have developed in many parts of the United States and Canada, and as rings of suburbs have encircled cities and spread far out into the countryside, native game has either fled or been killed off. The squirrel didn't flee, and because his antics are so amusing, many suburbanites encouraged him by putting out food and even erecting squirrel boxes in trees.

This was fine for a while, and they found that the squirrels of their neighborhood could become almost
(Turn to page 47)

The squirrel is just about the best tree planting device yet invented. But to do his best work he must be transplanted from urban areas to the natural habitat of a game refuge



Maine Development Commission photos

Log-rolling with cant-dogs (peavys) was another exciting and arduous event. Here two Dartmouth men fight against time as an interested crowd watches

Double-paddling aluminum canoes around a circuit of floating flags was one event of 1953 Woodsmen's Weekend. Here, two canoes nearly collide at finish



Woodsmen's Weekend



The pulp throwing event. Here one log has landed, another is in the air and contestant stoops to seize a third piece



University of Maine contestant shows fine form as he begins follow-through in fly casting event

The winners! Dartmouth's A team was composed of, left to right, kneeling, C. R. McKenny, coach; P. Blodgett, captain; R. Derzon; back row: R. Workum, R. Leavens, P. Henderson and N. Day. Their score: 1148.7 points

A WELL-BALANCED Dartmouth College team scored 1148.7 points to win the annual Woodsmen's Weekend, held recently at the University of Maine, Orono. Competing in colorful outdoor events, including fly and bait casting, crosscut sawing, buck sawing, pulpwood throwing, packboard racing, and a series of canoeing events, the Dartmouth team surged ahead of the University of Maine's B team in the final activities. The Maine B team ended in second place with 1107.4. Third place went to the Middlebury College A team with 1029.3 points. Other teams finished the competition in this order: Maine A team, Kimball Union Academy, Dartmouth B team, Middlebury B team, and McGill University.





YOUR SHADE TREES

... Tree Paint

By R. R. FENSKA

MOST PERSONS appear surprised when they are told that a suitable tree paint, or wound dressing, is difficult to find. Let us first list the qualifications for a good tree paint:

1) It must not be injurious to the cambium, or growing tissue, between the bark and the wood.

2) It should be durable so that a wound will not have to be treated frequently.

3) It must be antiseptic and protect the wood against decay.

4) It should have sufficient elasticity to form a non-cracking surface to cover season checks on the wound.

5) It must not be so impervious as to prevent the gradual escape of moisture and gases from the wood. Otherwise, water blisters will form and eventually expose the wood to decay.

These are some rigid requirements which it is difficult to find in one substance or material.

The main purpose of a tree paint is to keep out rot-producing fungi until the wound heals over with new bark. While experiments with certain types of tree paint seem to promote rapid healing this has not been definitely determined as yet.

One thing to keep in mind is that a tree paint is applied on wood which contains moisture. In the case of seasoned lumber for building houses the moisture content has been reduced to a small amount. In such a case ordinary house paint will serve the purpose for which it is used. Not so with a tree wound which has not had a chance to get rid of the surplus moisture to retard decay.

Another consideration is the possibility of the infection of a healthy tree with injurious fungus spores from a diseased tree by the use of

the paint brush. Therefore, the antiseptic feature of a tree paint is very important. Ordinary house paint does not meet this requirement.

Some treemen treat the edges of a wound with shellac and the remainder of the scar (heartwood) with a preparation containing creosote. This has merit. The shellac does not injure the delicate cambium tissue between the bark and the sapwood and the creosote certainly disinfects the rest of the wound against decay for several years. In the meantime the sapwood has been covered with a callus growth and new bark. However, it is safer to repaint the sapwood several times.

Another combination which has given good results is Bordeaux Mixture (copper sulfate and lime) stirred into a vegetable oil to the consistency of thick paint. Bordeaux Mixture is one of the standard fungicides used to control tree diseases and the vegetable oil is harmless to the delicate cambium layer. The objection to the blue-green color of this mixture may be met by adding lamp-black as one of the ingredients.

In the case of some fruit trees, like the cherry, plum and peach trees, the sapwood may absorb some of the chemicals in the tree paint, like creosote, and give the fruit an unsavory flavor.

One of the common tree paints in use now is an asphaltum solution, plus a disinfectant like phenol mercury, in a light vegetable oil as a base. This is of sufficient toxicity to protect the wound against infection from fungus diseases but is not harmful to the cambium layer to any appreciable degree. Some com-

mercial companies use a water-soluble asphaltum emulsion.

A thick heavy asphaltum paint does not make a satisfactory wound dressing since it forms too impervious a surface. It will not only cause water blisters which will sooner or later break and expose the wood surface but there also appears to be a tendency to stimulate, rather than retard, decay underneath the painted surface.

Another tree paint which has also been found fairly satisfactory may be made by stirring zinc oxide into raw linseed oil to the consistency of a heavy paint. If a dark color is desired lamp black or mineral black may be added. This paint will not injure the cambium layer and yet affords a fair protection to the wood by retarding checking and decay. As soon as checks occur in a wood surface they should be closed with a paint to prevent the entrance of rot-producing spores into the unprotected wood fibers.

A word of caution, however, must be noted. Commercial paints with an appreciable amount of creosote should not be used as a tree paint since the creosote will have a retarding effect on callus growth or may even kill the delicate cambium cells at the margin of a wound.

Pruning wounds less than an inch in diameter need not be painted since scars of this size will heal over with new cambium and bark tissue before decay can cause any appreciable damage.

In the case of resinous conifers, pines, spruces, larches and Douglas-fir, the trees provide their own wound dressing in the form of a resinous exudation. The resinous covering acts as a protection against infection by fungus spores for several years. Therefore, such trees seal their own wounds.

New Approach to Timber Access Roads

By REPRESENTATIVE HARRIS ELLSWORTH, M. C.

No matter how good its quality, a stand of timber which is totally inaccessible has no economic value—it is worthless. Build a road to it and such timber has important market value. The cash value of presently inaccessible standing timber, then, is its marketable price less the cost of building a road to it. In other words, no matter how the details are worked out the owner of inaccessible timber acreage is going to pay the cost of access roads—if he sells his timber.

Most owners of timber have worked the problem out in various ways depending, of course, upon the location, size and nature of their holdings. Unfortunately, the largest timber owner of all—the United States government—holding some 70 million acres or about 16 percent of the standing timber in the country, has never squarely faced the problem or developed an orderly plan for the harvest of its timber crop with an adequate access road system.

The timber access road problem is only about 16 years old. It was not until along about 1937 that loggers admitted that the pneumatic-tired logging truck was the best device for getting logs out of the woods and down to the mill. Since then trucks and roads have replaced "swing" and "road" donkey-engines in the woods. The logging railroads with their geared Shay and Heisler locomotives for the tough grades and the "sleek" Baldwin wins on the mainline are mostly memories.

Our federal government has been pretty much occupied with fighting wars and arming for defense during most of those 16 years so it is not altogether surprising that a workable solution of the timber access road problem has not yet been attempted. In fact, it was not until 1952 that Congress even officially recognized the building of timber access roads as a normal, peace-time function of government. In the amendment to the Federal-Aid Road Act passed that year, the House committee said in its report: "It is the sense of the Committee that in the expenditure of the sum



Rep. Harris Ellsworth, Oregon Republican, sees annual addition of \$30 million to the federal treasury under better roads program offered by his bill

authorized, approximately two-thirds thereof should be utilized for the construction of roads to provide access to timber on lands owned by the United States." Bills to authorize the appropriation of money for building timber access roads were introduced in the 80th, 81st and 82nd Congresses but none ever reached final passage by both Houses. I have introduced a bill in the 83rd Congress which, I think, offers an adequate and practical solution of the problem.

Congress first became aware of the timber access road problem during World War II when defense money was used in order to obtain lumber for war purposes. Later, in 1946, \$15,000,000 was made available in emergency housing funds. That money apparently had considerable to do with jumping log

production on national forests from 2.4 billion board feet in 1946 to 3.4 in 1947.

In spite of the fact that roads for harvesting the United States owned timber crop have not had definite official sanction, timber access roads have been built and are being built. Appropriated funds for this purpose are based upon old Forest Service authorizations for roads and trails and for forest highways. (It is certain that the Congress which passed these authorizations never contemplated their present use.) Except for recent special appropriations for the purpose of salvaging bug-infested or blowdown timber, annual money set aside for use on forest roads has been very little more than enough to rebuild bridges and maintain existing roads.

By far the most new timber access road mileage is being built by operators under Forest Service timber sale agreements. This plan works well but seldom is practical for building the heavy mainline roads which are so badly needed, especially in the Douglasfir region of the West. It is worth noting at this point that this sale agreement system has somewhat the same status as contract construction by the government, since the government actually pays for the roads with a reduction in stumpage prices.

The best that can be said for the present system being used by the U. S. government for getting its timber crop to market is that the job is only being two-thirds done—and on a hit or miss piece-meal basis at that.

As a result the federal treasury is losing \$30,000,000 a year it should be receiving and the people of our country a generation hence will be short millions upon mil-

**Let's borrow enough money to build a road system
that will bring production on national forests up
to the allowable cut and keep it there, says Oregon
Congressman in explaining his bill, HR 4929, now pending**

Reaction to Grazing Bill

A. R. Bohaskey — Yakima, Washington, rancher testifying before the House Interior and Insular Affairs Committee on the Stockmen's Bill, H.R. 4028—"If you sow the wind you shall reap the whirlwind. That is what some stockmen are doing now in pressing for the enactment of this bill. A deluge of opposition is developing in the West. Our relations with the public are being endangered . . . the stockmen should face this thing realistically. Watershed needs are permanent. Erosion must be prevented. To administer its lands, the Forest Service must have flexibility. . . ."

C. S. Congleton — Paulina, Oregon rancher — ". . . I do not think there are very many ranchers that do want any new legislation that applies to the public grazing lands — either national forest or Taylor Grazing lands. The Forest Service has established a maximum limit here in Oregon on all national forests of 400 head of cattle, which I think is correct, reasonable, and should be continued."

H. H. Chapman — professor emeritus Yale University, in a letter to Rep. D'Ewart of Montana, sponsor of the bill—"Up to now, the administrative regulations worked to diminish monopolistic holdings such as are illustrated by the Fernandez Company, of New Mexico, of which Laurence and Floyd Lee are the ruling forces. Under this proposed bill monopoly will be affirmed and strengthened and the subdivision of the privilege among many small permittees stopped in its tracks. No wonder the ruling cliques in the stock industry are for this bill. . . ."

Washington Post (editorial) — ". . . a thoroughly mischievous bill to give stockmen what amounts to a property interest in public grazing lands in the national forests."

Sunday Oregonian (editorial) — ". . . Approximately six million acres of federal forest lands are being grazed in Oregon under permits. Virtually all this acreage is shared by game animals, and a majority is in critical watershed areas. The principle of multiple use of public lands is as important as the multiple use of great rivers such as the Columbia. The stockmen's grazing bill would give one type of user an unnecessary and dangerous priority in rights. We think it should be defeated."

Thomas L. Stokes — in the Washington Star — ". . . There are encouraging signs in the hearings: First, evidence of public revulsion in the West against the bill which is sponsored in the House by Rep. D'Ewart (R Mont.) and in the Senate by Senators Butler (R Neb.) and Barrett (R Wyo.); and second, the seemingly antagonistic attitude, or at least dubious attitude of the Eisenhower administration. It was reported that the Agriculture Department actually had prepared an adverse report, but that this was withheld on pressure from the measure's promoters."

Mrs. Eleanor Roosevelt — in *My Day* — ". . . We cannot trust private interests not to overgraze their lands. . . . Human nature being what it is, we cannot expect from individuals as great a concern for the good of the country as a whole as for their own particular desire of the moment. . . ."

William Voight — Izaak Walton League of America — "The Secretary of Agriculture today is the official agent of the general public, who are the real owners of the national forests. This bill would make the Secretary subservient to those relatively few persons who enjoy the privilege of grazing on those public properties."

lions of "acre-years" of forest reproduction which should be growing where over-ripe and rotting timber now stands.

The national forests should be producing 6.6 billion board feet of logs annually (that is their sustained yield capacity) with a present market value of about \$89 million; they are actually producing only 4.4 billion board feet with a value of \$59.3 million. The uncut timber is lost to blowdown, insects and decay. The acres on which the uncut timber stands are lost to reproduction for the next generation. Until an adequate system of timber access roads is developed, this loss to the Treasury and of timber supply for the future will continue.

The operation and management of the national forests of the United States is big business. The national forest system is the greatest farm on earth. If the wood supply for our country is to be perpetuated this great business, this gigantic tree farm, must be efficiently and scientifically managed. It must have long-range production planning. Adequate capital investment to permit proper management must be made. A managed forest area requires a complete road system without which the remainder of our forestry program must fail or at least be futile. There simply must be a better way of meeting this obligation than the way we are doing it now.

My bill, H.R. 4929 (83rd Congress) which is now pending, has been carefully worked out for the purpose of meeting a business problem on a business-like basis. Briefly stated, the central idea of the bill is this: Since the timber itself does and must continue to pay for timber access roads, let's borrow enough money to build a road system which will bring production on national forests up to the allowable cut and keep it there—and then pay the money back with interest as soon as the timber is marketed. The public policy benefits, from doing this as proposed in H.R. 4929, include:

1) A definite construction plan can be carried out over a period of years (just as is the federal-aid highway system) without being subjected to the uncertainties of annual appropriations. In this way a logical cutting order can be developed, a complete road system planned, and opportunities af-

(Turn to page 30)

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New Blitz for Bugs

Man through the ages, in his yearning for peace, has talked about beating swords into plowshares. Now he can talk about converting buzz bombs into bug killers.

This modern version is symbolized by a new, light, portable fog-maker tracing its origin to the German V-1 buzz bombs, the weapon employed by the Nazis in their attempt to beat Britain to her knees in World War II. Bearing the name of "Swingfog," the war-spawned device atomizes a standard pesticide into a dense, clinging fog for killing crop and tree-destroying insects.

Utilizing the same pulse jet principle of the buzz bomb, "Swingfog's" gasoline-fueled pulse jet heater generates an exhaust stream through a rifle-like tube. As the heater is operating, a pesticidal formulation is automatically injected into the end of the tube. When the pesticide-discharge exhaust hits the atmosphere, resulting condensation forms a fog composed of millions of poison charged droplets. Since the heating period is of fleeting duration, pesticide potency is not affected. Developed from work begun by German scientists during World War II, the manufacturer sale and distribution of this device recently was licensed by private German interests to Devenco, Inc., of New York City.



"Swingfog" being used effectively on infestation of tent caterpillars.

Timber Access Roads Plan

(From page 28)

fledged to market special products such as poles, piling and (in the Northwest) pulp stock from the whitefir and hemlock "understory," prior to harvesting the sawlog crop.

2) Certain requirements and restrictions are set out in H.R. 4929 which are necessary to the orderly operation of a business proposition of this sort but which could not be done so effectively on the authorization and annual appropriation basis common to our federal administrative system.

During 1951 a study of national forest timber access road construction was made by the U. S. Forest Service for the purpose of finding out and then scheduling in an orderly manner the road construction required to increase the cut on the national forests to their sustained yield capacity within five years.

With reference to this study U. S. Forest Service timber management expert, Mr. Mason B. Bruce, makes this explanation:

"In scheduling construction responsibility to individuals and groups, an effort was made to be realistic. All construction having a direct effect upon timber access that should properly be done by public agencies such as states, counties and towns and by neigh-

boring private interests was so scheduled. Of the remaining construction, that considered necessary for a prudent operator to construct in connection with removal of purchased timber, the costs of which would be included in applicable sale appraisals, was scheduled for Forest Service operator construction. The rest was earmarked for government construction. This latter consisted largely of high-cost mainline roads, expensive bottlenecks, roads to salvage areas and key roads necessary for effective management of the resource and for community stability."

The survey indicated that the desired result could be achieved with a total government expenditure of \$125,000,000 at the rate of \$25,000,000 per year. These facts became the basis of the figures I used in writing H.R. 4929.

No revolving fund will be created by the bill. The total sum involved is the \$125,000,000 which is the amount estimated to be required to do the job.

The mechanics of the proposal are simple. Any thought of the grant of a blank check to the Forest Service for road building is eliminated by pinpointing the application of the procedure to specific working circles. When it is proposed to build or expand a road system in any working circle first of all a public hearing is held in or near that working circle. At such hearing the views of interested persons as to the necessity, practicability and feasibility of the proposal will be considered. When this and other preliminaries are completed, the Secretary of Agriculture requests the Secretary of the Treasury to loan the Forest Service enough money to do the construction needed in that working circle.

In making his request for a loan the Secretary of Agriculture is required to certify, a) that the proposed construction is necessary for the proper management of the working circle; b) that sufficient timber will be offered for sale in the working circle so that receipts from its sale attributable to road construction will repay the loan with interest within 25 years; and

(Turn to page 38)



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MIRACLE OF THE TRUMPETER SWAN

By Jack Jackson

"It will take a miracle," said bird lovers of just two dozen years ago, "to keep the Trumpeter Swan from disappearing all together in these United States."

For just two dozen years ago there were but 73 of these magnificent white birds in our country. Today, there are 573 Trumpeters here. That miracle has come to pass.

To understand the Trumpeter's story we must go back for a moment to our grandfather's day. Then great flocks of migratory Trumpeters, their huge wings spread in a graceful eight-foot span, were a common sight along the Ohio, the Mississippi and the Missouri river valleys.

As our grandfathers and their companions moved westward, eager hunters took their toll. This big, 30-odd pound bird with its low, swooping flight was an easy target. Heavy trading in the bird's down and breast skin developed. Within 20 years, one eastern company alone bought 18,000 Trumpeter Swan skins, so great was the demand.

But gradually, the plight of this beautiful, helpless bird began to eat itself into the American conscience.

As always, when America is fully aroused, purposeful action by Congress follows. In the early 1930's Congress authorized an aerial survey to determine just how many Trumpeter Swan still frequented known

haunts. Imagine the consternation when this count, checked and rechecked in disbelief, showed just six dozen and one of these beautiful birds left in the whole United States!

An informed Congress acted swiftly. In April 1953, 5000 acres of lake, marsh and swamp in the Red Lakes District of Montana, known favorite home of the Swan, were set aside as a refuge by national decree.

Patrols were organized to keep warm springs open all winter to encourage the bird to winter here and avoid long, dangerous flights to winter homes. Ponds were sown with Sago Pondweed, Naias, wild Celery and Sagettaria. Because the Swan makes his home on old muskrat houses, muskrat trapping was forbidden in this area. Observation established the coyote as Trumpeter enemy No. 1 in the animal kingdom, so coyote hunts were organized.

Each succeeding year's census showed gain in Trumpeter population.

Today, we know the beautiful Trumpeter Swan is here to stay. In the last five years, young cygnets have been successfully transplanted to three other areas . . . in Oregon, in Nevada and in Wyoming. A few young have appeared in these areas and at least eight have reached the flying stage. There is now hope the Trumpeter will establish himself in these new areas.



Science on the Stump

(From page 9)

woods brook to watch the young minnows darting friskily above the white pebbles stirring restlessly in the creek bed, it may be that he is filled with envy for the farmer who owns such a brook and such a woodland. He may even wish to amble down the lane to the farmer's home to discuss these interesting discoveries he has made.

"We work hard," the farmer tells his visitor as he hands him a dipper of cold well water from the milkhouse pump. "And to me, chemical debarking has spelled the difference between some timber production and no timber production. Two years ago I wasn't getting out any wood. Didn't have the time. On a farm it's always something that needs doing NOW—plowing, planting, cultivating, spraying, haying or threshing. Then too, those logs have to be peeled for the pulp mill. That's a slow job and we have a short peeling season—roughly from mid-May to August. On an average, a man can only peel two cords of wood a day. On top of that, most people hate the job. Another thing, labor is tight hereabouts. We're always competing with the blueberry, sardine and potato people."

"Then one day one of the foresters from the pulp company came along. He handed me a paint brush and a can of sodium arsenite. Then he asked for my single-bit ax and taking me out in the woods, showed me how to make a girdle from four to six inches wide—taking care not to cut into the wood itself. Next he applied that arsenite solution to the girdle with the paint brush and announced 'now you can sit back and watch this tree peel itself.' He was right, too. Now I can girdle 20 or 30 cords in one day, then just sit back from six months to a year and wait. After that, I can harvest my crop anytime I like. When I fell the trees they don't hang up the way they used to, for the branches are pretty well gone. There's less slash and consequently less of a fire problem. I don't have to compete with the blueberry people in their peak season. For the last two years I've had a tidy income from my woodlot and the Mrs. finally got that deep freeze she wanted. And as a result of these thinnings, I'm getting more

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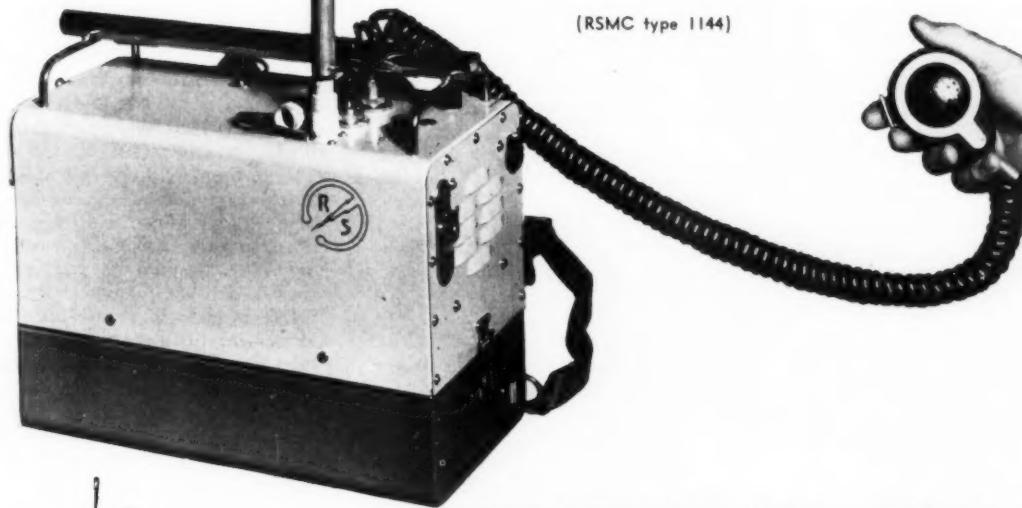
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Science on the Stump

(From page 32)

growth on my woodlands than I ever had before.

"Wildlife poisoned? I've never seen any evidence of it. We found one dead deer last fall. The pulp people had told me to report anything like that immediately as this business is still in the experiment stage. A biologist came out and performed an autopsy on the deer. He didn't find any traces of arsenic in the animal's liver. If there had been, chances are it would have been caused by the arsenic I use for dusting my apples, the paris green I use to spray potatoes, or the arsenic solution I use to weed out my fish pond over there. I use a lot of arsenic on the place. Most farmers do."

A farmer in New York state has this to say about the new peeling process:

"One of the foresters of the International Paper Company at Glens Falls put me next to chemical debarking. He gave me a brush, a paint can and the solution. I wasn't too impressed at first. But it works. I felt so well of the thing that I later dropped around and paid them for the equipment."

The possibilities inherent in this new process were recognized by pulp and paper about a decade ago. Prior to that—around 1931—Nelson Spaeth and the late Josh Cope experimented with sodium arsenite at Cornell University, simply for the purpose of disposing of undesirable species of wolf trees, without appreciating its possibilities for making peeled wood. Ten years ago the Armstrong Forest Products Company of Pennsylvania, the outstanding pioneer in the work, and the Marathon Corporation of Wisconsin, came to the conclusion that chemical debarking represented one solid answer to the small woodland problem and started experiments. Finally, in 1951, 13 major pulp and paper concerns, eight of them with holdings in Maine, set up a Chemical Debarking Research Project to determine "simple, efficient and controllable techniques for loosening the bark on living trees" and to determine the effects, if any, of toxic chemicals on wildlife.

To head up the research team, the industries agreed on Dr. Edwin C. Jahn, associate dean of the College

of Forestry, State University of New York. The research team selected by Dr. Jahn included: Dr. Hugh Wilcox, plant physiologist and an expert on radium isotopes; Dr. Felix Czabator, botanist and pathologist; Dr. Robert F. Smith and Dr. Donald Moreland, biochemists; Dr. Guido Gerolami, plant anatomist; Professor Ralph King, zoologist; and Dr. William Webb, biologist on the college staff who is collaborating on the project.

Research, fundamentally, is a matter of asking questions and getting answers. Most of the questions are exploded in going through the research mill and it's a rough and tumble business. For two years little was heard from the project by the public. It was plenty busy just the same getting up theories and knocking them down on the university's Huntington Wildlife Experiment Forest in the Adirondack region of New York and on selected industry research areas all over the nation. "What is the story on sodium arsenite?" the project was asked at one time. "No gospel truths to report as yet" was the reply. "Progress is being made" was the gist of a cryptic announcement put out on one other occasion by W. S. Bromley, of the American Pulpwood Association, and the secretary treasurer of the project.

Finally, last month, the project announced that it was ready to show results and answer questions. With Louis Freedman, woods manager of the Kingsbury firm acting as host, the investigating force was conducted on a field trip over the proving grounds. Why the new practice is superior to hand peeling and portable debarkers was shown. New girdling tools—notably the Bennett (Armstrong) peeling spud with a turned-up lip and the McLeod (Eastern Pulpwood Company) girdler that prevents cutting into the sapwood—were shown in operation. Treated trees were pointed out on which the bark was peeling off in cylindrical chunks—bark chunks that conceivably should have some market value. Not pointed out but obvious to all was the way young growth in debarking areas was getting a headlong start with its competition removed.

Then the investigators got down

to cases. There was no question that chemical debarking—as a woodlands practice—works well, all agreed. Conceivably, it might encourage millions of small owners to make a stab at forestry for the first time for in girdling crop farmers, whether they realize it or not, are unconsciously practicing selection. But what was the story on sodium arsenite? Was there potential danger to wildlife when the solution was applied to the tree? If so, what was being done about it?

"This project is unique in industry," Biologist Webb replied. "In launching the project there was no problem as far as we know. But we thought there might be. Sodium arsenite is a toxic chemical so, of course, there was potential danger. That was what we were determined to find out."

After two years of work on the Huntington Forest, no evidence has been uncovered that animals are attracted to treated trees, Dr. Webb said. Nor has there been any evidence of mortality from sodium arsenite despite the fact that deer, songbirds and small mammals are all present on the treated areas in abundance. In one experiment, porcupines were confined in cages where treated and untreated branches were provided for food. Without exception, they ate the untreated branches and did not take the treated food until on the verge of starvation, Dr. Webb said.

Last year, however, approximately ten dead animals were found near areas where chemical debarking projects had been set up by industry in the Lake States and New England regions. A few of these had been attracted to treated trees and examination of their tissues revealed the presence of arsenic.

This was the signal for an intensification of the work. Since red dye had been used in the solution up to this time, tests were made to determine if the color attracted deer. These animals, of course, are color blind but it was thought they might prove susceptible to color intensity. Dog biscuits placed on boards painted red and blue provided an answer. In all cases, the deer went to the boards painted red.

"Switch from red to blue dye" was the order that went out to experimental areas around the country.

Work at Huntington has also revealed that only one part of a treated tree is dangerous, and that is the

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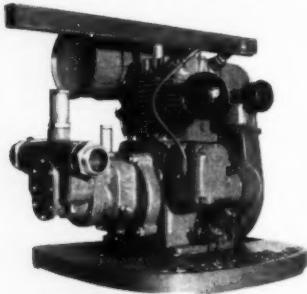
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area where the sodium arsenite is applied. The chemical is concentrated at the time of application but as it moves through the tree it becomes so dilute that it is not dangerous in bark, buds, leaves or twigs. Insects collected on treated areas were found not dangerous to birds that ate them. Nor is there any evidence that fish in streams where treated pulpwood has been floated are affected.

Studies with radioactive sodium arsenite indicate that the danger period is short, Dr. Webb stated. In less than one week the amount of arsenic at the place of application is so low that it is no longer dangerous. Therefore, the handful of animals that have been affected to date probably contacted the treated trees the first few days after application.

The most certain solution to the problem, of course, would be to use a nontoxic chemical to loosen the bark, Dr. Webb continued. Screening tests are continuing to find such a chemical but to date none can be recommended.

Repellants? Taste repellants have proven unsatisfactory, Dr. Webb replied, but there are indications that odor repellants may prove helpful. In testing this problem, the scientists went to the Dow Chemical Company and asked for samples of their wares that "smell bad."

"We have 12,000 chemicals on our shelves and they all smell bad," the Dow men replied. "Take your pick."

Some of the smells from the shelves of Dow were so vile that they were rejected as too hot to handle. A sniff of one of these, a witches' brew concocted from the bones of dead animals, is sufficient to explain why. The chlorinated phenols and coal tar solutions, on the other hand, may prove out. Solutions with a creosote base are also proving effective in tests now going on, deer finding these especially repellent. This work continues. At present, tests are being made with penned deer by the Michigan Conservation Department.

In coming back to the subject of the few autopsied animals found to date with arsenic in their livers, Dr. Webb said that one significant fact noted was that all of these animals were found early in the spring, a situation that encouraged him to offer a "theory."

This theory, the biologist said, is that in coming off winter browse some deer may have a sodium deficiency—and a craving for sodium this one time of the year may tempt the animals to take a few licks at a

solution they reject in other seasons. With true scientific caution, Dr. Webb hastened to emphasize, this was only a "theory" but that he intended to "explore it."

"So do I," boomed out Dr. Yurii Eugene Lebedeff, one of a dozen scientists in the group who had snapped to attention at the word "theory." "I'll spend the next few months if necessary trying to knock that one down."

That's the spirit that is the driving force back of this Chemical Debarking Research Project. Enough "theories" have already been exploded in the course of two years to fill a haymow and the research men, with the support of pulp and paper, intend to stick to it until they reduce any hazard to wildlife to zero.

Summary of the results as revealed at Kingsbury boil down to this. While there are still flaws, chemical debarking is proving a success. Its impact on the nation's forest economy may prove to be great over a period of time. Wildlife people are impressed by the good intentions of an industry that is pouring both money and time into long-term research to provide for the safety of birds and animals.

As it stands now, the chemical is "not a serious threat to wildlife," biologists say. They intend to reduce that to no threat at all in future months.

Meanwhile, the excellent press the Kingsbury meeting has received in Maine must be a source of gratification to the sponsors of the research project. With no exceptions, outdoor writers have viewed the new development as a boon to timber management—a move to provide for bigger and better deer herds and other birds and animals in future years.

In this way, toxic chemicals that were used with such dread results by the infamous Lucrezia Borgia and the Marchioness de Brinvilliers in the 16th and 17th Centuries today are being made to serve man and wildlife in many and varying ways. Insecticides alone are a 100 million dollar business in the United States today. Over three million pounds of toxic dusts are used by farmers every month—including the lead arsenite that insures our annual apple crop of 100 million bushels. To this list of foods and other commodities benefiting from the use of toxic chemicals can now be added—timber—as once again, modern day research, pushes the nation forward on the path of planned abundance.

Compromise Sought on Grazing Bill

Efforts of key conservation groups to block H.R. 4023 and S. 1491, the so-called "stockmen's grazing bills," have been successful if it was revealed on June 20th at a meeting initiated by the chairmen of the House and Senate committees on agriculture and forestry. However, purpose of the meeting as revealed by Senator George D. Aiken and Rep. Clifford R. Hope, chairmen of the two committees, was to consider possible "compromise" legislation to help the stockmen.

Representatives of key conservation groups in Washington who fought the two grazing bills and who were invited to the June 20th meeting on the Hill were agreed in the main that any new legislation at this time would be regarded with mistrust by the general public.

As reported by conservationists who attended the meeting, the administration is opposed to both H.R. 4023 and S. 1491 as they now stand but is not convinced that all avenues have been explored that might help the stockmen. One view taken on a proposal to "legalize everything now being done by the Forest Service" in connection with grazing was that this merely represents a move to "save the face" of lobbyists who have been active for the two grazing measures.

Forest Tools

(From page 18)

variety of auger bits, do the best work.

Large circular openings, with diameters up to several feet, are made with barrel saws, operated either by power, or with a regular brace. A barrel saw is a saw blade riveted to a round steel disc, so that when it is rotated, a circular hole is made. Such saws are used chiefly in industry.

Power drills have been used in industry for a great many years, but in the past 15 or 20 years the development of extremely light portable electric drills, which any amateur woodworker can use around the house, is making the once standard brace and bit almost obsolete. And since the power drill doesn't need to be drawn into the wood, the bits used need no screw point.



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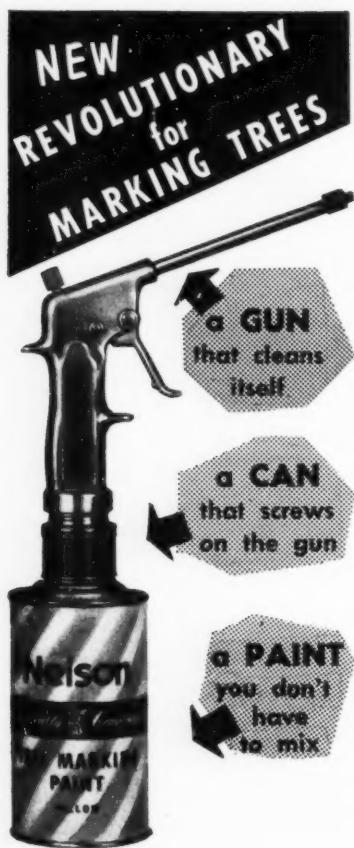
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Timber Access Roads Plan

(From page 30)

c) that the road construction will be to standards required for a timber access road in the circumstances involved.

The Treasury then makes the loan, using government funds received from ordinary bond sales. The loan is repaid with interest, when the roads are constructed and the timber sold, by allocating the necessary amount out of timber sale receipts which are turned into the Treasury.

Other financing methods were considered and rejected. An obvious thought, especially heretofore, would be to use R.F.C. financing. That method would appear to be uncertain now.

It was not considered advisable to make a further straight percentage bite in Forest Service receipts for road purposes. The objection to that plan is first, that it constitutes too much of a blank check to the Forest Service and, secondly, such revenues fluctuate too much to permit of orderly planning.

Any of these methods might be used rather than the plan I propose, but I believe the simplicity and effectiveness of the method set out in H.R. 4929 will rule in its favor.

Other features of my bill include: authorization of timber access road construction by requirements in contracts for the sale of national forest timber; authorization to use the financing plan provided in cooperation with public

or private agencies or persons; and provisions for negotiating payments for use of the roads constructed with funds provided by the bill by haulers of other than federally-owned timber. Suitable annual reports on the operation of the program are also required.

To sum it up briefly, the timber access road bill which I have introduced will 1) cause \$30,000,000 annually in new revenue to come into the federal treasury; 2) permit the harvesting of more than two-billion board feet of federally-owned timber annually which is now being lost; 3) make possible sound and scientific management of the forest reserve owned by the United States, which is impossible today; 4) provide jobs and opportunities by opening up over-ripe but inaccessible timber stands.

If my plan is enacted into law all of those benefits will result—without costing the taxpayers one cent!

There is no trick "scheme," no magic or any "crack-pot" idea involved. What I propose will merely replace the present confusing, unsatisfactory and inadequate system of financing Forest Service timber access roads with a business-like, self-liquidating plan. All of the details involved in this plan are known and tried. I have merely brought them together to provide a workable solution to a troublesome and costly problem in federal forest management.

Who Said It?

- 1—The practice of conservation is an act of patriotism and the understanding of it, the preaching of it and the contribution to it, are parts of the fundamental duties of a citizen in a free society.
- 2—A nation may cease to exist as well by decay of its resources as by the extinction of its patriotic spirit.
- 3—The purpose of conservation: The greatest good to the greatest number of people for the longest time.
- 4—As a people we, here, have wrought more destruction in a shorter time than any other people of any time.
- 5—Since the achievement of Independence, he is the greatest patriot who stops the most gullies.

Answers

- (1)—Sherman Adams; (2)—Bernhard F. Ernstorff; (3)—Gifford Pinchot; (4)—James H. Duff; (5)—Patrick Henry. (All quotations from "Conservation Quotations" published by the National Park Service, United States Department of the Interior.)

RECOMMENDED READING

Pathology in Forest Practice, by Dow Vawter Baxter. Published by John Wiley & Sons, Inc., New York. 523 pages, illus. Price \$7.50.

Presented in this second edition is the "inside story" of the origin, nature, and causes of diseases in trees and forests throughout the United States, Canada, and Europe. It tells how to check, regulate, and control pests and diseases that destroy or limit the usefulness of trees and products, and how to save money by accurately diagnosing the disease and its cause.

After diagnosing plant disease in general, the author treats the fungi which cause disease and then discusses the relation of site and cultural practice to disease incidence in the nursery, the plantation and the mature forest.

In this new edition are discussions of pole blight in the northern Rocky Mountains and the dieback of birch in New England, littleleaf disease of pine in southeastern Piedmont, the use of DDT and 2,4-D in forest practice, the prominence of virus diseases, the effective use of preservatives, anti-stain and anti-mold chemicals, the interrelation among insects, fungi, and disease and the new emphasis given to the fact that both site and cultural practices cause or attract fungi or disease.

Jareb, by Miriam Powell. Published by Thomas Y. Crowell Co., New York. 241 pages, illus. Price \$2.50.

This is the tale of a fourteen-year-old boy and his shiftless hound set amidst the Georgia loblolly pines. This is no milk-and-water picture of a "quaint" people. Violence and even death play their part in Jareb's story. The reader will often have to swallow back his tears, but more often he will laugh with delight at the funny things and the good things that happen to Jareb.

Fire Behavior in Northern Rocky Mountain Forests, by J. S. Barrows. Published by the Forest Service, United States Department of Agriculture. 102 pages, illus.

Intended primarily as a training manual, this publication summarizes present knowledge of some of the most important factors influencing the ignition, rate of spread, and general behavior of fires.

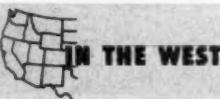
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tive gauge indicating the degree of forest fire hazard—low, medium, high, critical, etc.

Arriving at these indexes is, of course, a tricky business, but some individual systems have refined it into a pretty exact "science." One such system is that worked out by J. B. Melin, a Weather Bureau fire-weather specialist in Seattle for 18 years who is now a private consultant to Pacific Northwest lumber companies and government agencies. "Melin's meter," a cardboard affair similar to a slide rule uses as factors relative humidity, wind velocity, timber moisture content and condition of vegetation. When making a forecast with the prevailing conditions of each of the four factors set on the meter, the result can fall into one of five classifications, ranging from low to extreme.

"If we judge the hazard by just one of the factors we may get a misleading answer," Melin explains. "But when we take them all into account in their proper relationship we can come much closer to the truth." The Forestry Digest, a publication of the American Forest Products Industries, Inc., reported that the meter "functioned flawlessly on several forest fronts in Washington and Oregon during the summer of 1952."

Another direct aid given by the Weather Bureau in its fire weather stations is its mobile weather stations. Mobile units are really weather stations on wheels. They include a fairly complete set of instruments, sometimes even a communications hookup with the fire weather center, and are used mainly on going fires. They operate right at the scene of a fire, giving the fight-

Fire Weather Ahead

(From page 12)

ers very localized information on such factors as wind currents which might change suddenly and whip a fire down a gully and other similar information essential to keeping a fire under control. The mobile units, mounted on half-ton trucks, usually are manned by one meteorologist, but in emergency circumstances two men may staff a unit. At present the Weather Bureau has eight of these rolling stations, operating principally out of fire weather centers in western states.

Recipients of the Weather Bureau's fire weather service are loud in their praise of its usefulness. Importance of the service in the estimation of those who are responsible for preventing and fighting fires is indicated in the following statements made by C. S. Crocker, U. S. Forest Service Regional Fire Control Chief in the Northwest, and C. S. Cowan, chief fire warden of the Washington Forest Fire Association.

Says Crocker: "On the St. Joe fire, some 900 men were 'highballing' a fire line ahead of a dangerous big fire in a valuable timber area. Tactics were adopted on the basis of normally-expected wind conditions which would cause an eastward run by the fire. Most of the manpower was concentrated in preparing a close-up, flanking attack line, since such action would be essential for control under a west wind. A special weather forecast indicated a radical change in wind direction. The unusual—an east wind—was predicted. Forces were shifted and the tactics changed to a scheme of backfire preparation. The wind changed, the lines held, and thousands of dollars of expense were saved. Several hundred fire fighters were released, and large crews of vitally-needed lumbermen returned to their jobs days earlier as a result of action made possible by special weather reports."

Cowan, in the 37th annual report of the Washington Forest Fire Association, states: "We have cooperating with us the United States Weather Bureau, giving us advance information as to approaching dangerous fire-weather conditions. Logging operators know that fires originating at such times become almost instantly beyond control. This warning service has become the mainspring of forest protection and prevention

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in the logging camps of western Washington. To this one step can be laid the decreased losses which heretofore were suffered by the industry. Without the cooperation of the Weather Bureau, there is little doubt that failure to appreciate the approach of dangerous fire-weather would have resulted in a decrease in lumber. The cooperation of the Fire-Weather Service is one of the most valued assets in the work of fire protection."

But for all this praise, the Weather Bureau likes to consider itself as just a member of the team. It points out that for its service it gets in return all sorts of vital weather information from forestry and other volunteer employees in widespread areas. As Milton L. Blanc, chief meteorologist at Weather Bureau headquarters in Washington, D. C., puts it: "We can't go it alone in weather." When Meteorologist Blanc says this he is referring not only to domestic cooperation but to the international teamwork of the World Meteorological Organization, the members of which (including Russia) collect and relay weather information from all parts of the globe.

Reliable as USWB forecasts are,

however, meteorologists feel they have just scratched the surface in giving useful service to forestry and other interests. Though meteorology was written about as long ago as Aristotle's time, weather forecasters say that only now are they beginning to understand the all-important upper stratosphere. With the aid of radar and rockets they are conducting experiments many miles into outer space, aiming research at the ultimate of predicting weather for an entire season.

Meanwhile, for the here and the now, most everyone will agree that during the fire season the forecaster is, indeed, the foresters' best friend.

Special Issue Planned

One feature of the Fourth American Forest Congress called by the AFA October 29-31 in Washington will be a big special issue of American Forests with a variety of stories, picture layouts and maps of forestry progress in the greater Washington area. A Who's Who in forestry organizations will be included that readers will be able to use for future reference. Don't miss your convention issue of AMERICAN FORESTS.

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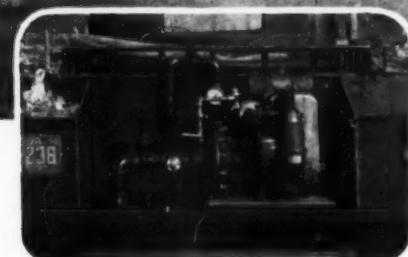
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Curiosity Leads Her On



Miss Goetz

Her stay-at-home friends in Cleveland, Ohio are of the opinion she is a trifle mad, Bernice Goetz suspects. They are always asking her, "Why are you always going to those awful jungles. And all alone too."

Her frank answer is "curiosity." A mountain range in Mexico marked "unknown" on an old map resulted in her taking the first leap. She was 19 at the time. But she had to go there.

Inside of a year she was standing on a low mound gazing over scrub jungle at those same "unknown" mountains. This in itself was highly satisfying to Miss Goetz. Then her boot happened to dislodge a pebble. It rolled out in front of her and stopped. Closer inspection proved it was a carved snake's head. The mound proved to be a fallen temple rich in idols and potsherds of the earliest races of Mexico.

The incident made an explorer of

Miss Goetz. She now finds it difficult to stay home. There are too many marvels to be uncovered in far-away places. Alone except for Indian carriers, she has been on 12 expeditions. Her earliest

objectives were archaeological sites from Central America to Peru. Then she turned to the study of primitive Indian tribes. Her last trip was to seek the headwaters of the Magdalena River in Colombia.

These trips have led Miss Goetz to some strange places. On a mule-back trip into uncharted country in Honduras two of her mules died from nightly attacks by vampire bats. The monsters also attempted to attack Miss Goetz and her guide by crashing through their mosquito nets. On another occasion the search led to Peru for Inca idol heads. Another time, grisly, shrunken heads of humans proved to be her ghoulish goal in Ecuador.

This month, from July 21 to 31, Miss Goetz will undertake another kind of expedition—the Sawtooth Wilderness pack trip conducted by AFA's Trail Riders of the Wilderness in Idaho's Sawtooth and Boise National Forests. This will offer no Inca treasure or Indian headhunters as inducements. It does offer some of the most magnificent, unspoiled scenery in North America. The Spangle Lakes, the Golden Stairs cataracts, Fern Falls, Big Redfish Lake and Galena Summit—these are some of the highlights that Trail Riders have reveled in since 1937. A full complement of 25 riders will again be making the trip this month.

Miss Goetz is looking forward to the experience with her usual hearty exuberance. True, she is not likely to be repulsed by unfriendly natives on the Middle Fork of the Boise River.

It makes no difference. Adventure is where you find it, Miss Goetz explains.

In a word, "curiosity." And it makes no difference whether it be the jungles of Ecuador or the wilderness regions of our own Far West. Both have their own appeal.

Forestry in the 49th State

(From page 22)

Soon after his arrival in January 1904, Mr. Hosmer made trips to the different Islands to acquaint himself with forest conditions on the ground, general public attitude and activities of people particularly interested in forest land and to secure data for outlining the work to be done. Particular attention was paid to the need for establishing a forest reserve system and by the end of the year, recommendations had been made to the Board, public hearings held and the governor had proclaimed two areas of government land as forest reserves. The Kaipapau Forest Reserve covering an area of 913 acres of government land on the northeastern slopes of the Koolau Mountains of Oahu was the first area to be established officially by proclamation of the governor dated November 10, 1904. This reserve, with revised surveys showing an area of 897 acres of government land and the later inclusion of 276 acres of privately-owned land still retains its

separate identity as a part of the reserve system of Oahu. The second reserve, proclaimed by the governor on December 23, 1904, covered some 17,000 acres above the Hamakua Pali (cliff) on the Island of Hawaii. This area has since been combined with adjoining lands on Kohala mountain to form the Kohala Forest Reserve.

By the end of 1914, when Mr. Hosmer resigned to return to work on the mainland, a total of 37 reserves had been located and proclaimed covering 546,222 acres of government land and 251,992 acres of private land.

The location and examination of areas desirable for permanent retention under, or return to, forest cover was continued actively under Mr. Charles S. Judd, who succeeded Mr. Hosmer as Superintendent of Forestry until 1932 when the main areas found desirable for watershed and soil erosion protection had been set



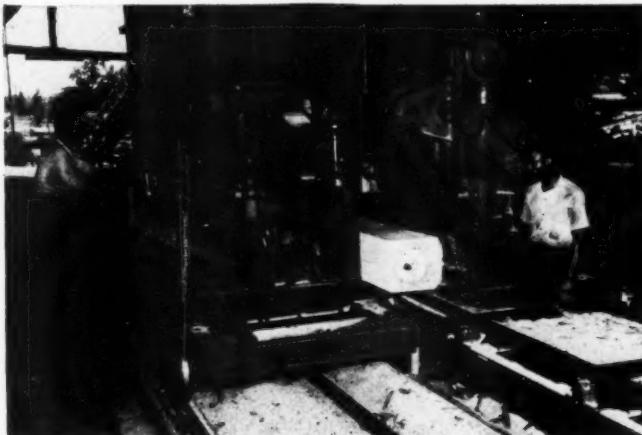
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aside. These areas, with minor adjustments and additions as found desirable, now cover 1,065,194 acres or slightly over 25 percent of the land area of the Territory. (See table).

The original law of 1903 provided only for the employment of the Superintendent of Forestry with no paid assistant forester or rangers, but provided for the appointment of district foresters on the different Islands on an honorary basis. Mr.

lulu (Island of Oahu), Maui and Hawaii) and a district ranger force of 12 men appointed together with an increase in nursery foremen and field labor force.

The heavy destruction of forest cover by unrestricted cattle, sheep and goat grazing over many years made tree planting an item of prime importance in restoring adequate cover to large areas of watersheds and to provide windbreaks and local supplies of timber and fuel. Avail-

Redwood Plantation Thriving in Hawaii

By Hawaii Press Bureau

High on the slopes of the extinct volcano Haleakala, on the island of Maui, a forest of giant Humboldt redwoods is coming into being.

Twenty-five years ago the area was devoid of vegetation. Fires, overgrazing and the depredations of wild goats had destroyed the native hardwood trees (Mamane) which once had flourished on the mountain side.

Two island leaders, William Crosby and Charles Judd, appalled at the loss of Hawaii's heritage and economy, decided to try an experiment. Under their leadership, seeds for 1,000,000 trees, including more than 50,000 redwoods, were planted in the denuded area. The plantings were made in a belt about half a mile wide, ranging in elevation from 5000 to 6200 feet above sea level.

The project was a gamble because, although the average rainfall in this sector is about 30 inches annually, the water quickly runs off or sinks into the volcanic rock.

Recent surveys of the area indicate the gamble is paying off beyond the most optimistic expectations. Those who saw the area back in 1927 and today call it a miracle. Starting from seed, some of the redwoods have already attained a growth of 45 feet and are flourishing. One of the trees recently examined measured about 70 inches in circumference three feet above the base.

Experts credit the remarkable growth to the heavy, moisture-laden fog that continually shrouds the upper areas of Haleakala.

Hosmer secured the appointment and cordial cooperation of plantation and ranchmen as district foresters in the various districts of each Island and valuable assistance from them in encouraging the planting of trees, outlining of areas they believed desirable for forest reserve and encouraging of the fencing out of livestock from such areas. But in spite of numerous pleas to the legislature on the need of full-time assistant foresters and rangers to carry on needed field work and enforcement of regulations, appropriations continued to be too small to permit such employment throughout Mr. Hosmer's term of office, and it was not until 1918 that funds were provided for the employment of an assistant forester and two rangers. With increasing appropriations the field force was gradually increased until, by 1930 a full-time assistant forester had been provided for each of the four counties (Kauai, Hono-

able old records indicate that private interest in restoring tree growth had developed to an active stage by 1882 with tree planting by Mr. George Wilcox on Kauai, soon followed by other individual landowners and plantation members of the Hawaiian Sugar Planters Association, so that by the time of the government reorganization of forestry work in 1903, close to a million trees had been planted in windbreaks, erosion-depleted lands and watershed protection. Early work showed that native species did not respond readily to nursery production and changed field conditions so that seed of many hundreds of species were brought in from both tropical and temperate climate countries around the world and large, beautiful examples of many are found today in public parks, private grounds and roadside planting as well as in forest plantations. The rapid growth and success under difficult conditions of many

species of eucalyptus made them prime favorites among many tree planters but, in spite of this preference, considerable areas of other species, ranging from the temperate climate pines, cypress, redwood and cryptomeria through many of the valuable tropical hardwoods have been successfully set out.

Of especial interest in the establishment of an exotic species is the natural spread of a species of *Prosopis*, locally named Keawe, over some 90,000 acres or more of the very dry leeward slopes and coastal areas where it seems probable that no tree growth previously existed. Seed of this tree, apparently a Mexican or South American species of mesquite, was brought to Honolulu in 1828 by Father Bachelot and planted in the grounds of the Catholic Cathedral on Fort Street, where one seedling grew to be a large tree before it had to be cut down in 1919 to make way for a new building. Seed from this tree were distributed to the different Islands and, as the beans made good cattle feed, the seed was rapidly spread through the drier grazing lands to establish good cover and an excellent source of firewood, fenceposts and cattle fodder for the rancher and an excellent source of honey for the beekeeper.

Aside from the planting of the Tantalus and Nuuanu Valley areas of the Honolulu Watershed, under the direction of Mr. David Haugs during the '90's, practically no tree planting was done by the government with the exception of small experiment plot trials of new species and attempts to find suitable species and methods for use in areas of various grass and shrub growth making planting operations difficult, until after 1920. Then with increasing appropriations provided by the legislature, an active program of reforestation of denuded government lands within the reserve areas was built up so that in the following 13 years up to the establishment of the Civilian Conservation Corps operations in 1934, a total of some 2,500,000 trees had been planted on 5300 acres.

During the following eight years of CCC activities up to December 7, 1941, great strides were made in forest planting, fencing and trail construction together with other needed forest work and some 12,300,000 trees were planted on 26,000 acres of government reserve lands. Available records indicate a total planting

through 1952 of 15,000,000 trees on 34,000 acres of government lands in forest reserves and private planting of 21,500,000 trees on 45,500 acres of plantation and ranch lands and privately-owned areas within forest reserves.

With the normally prevailing wet conditions through much of the forest area, fire control has not been a severe problem and checking of land-clearing operations and carelessness with fire by hikers during drought periods has been the main protection activity.

As may be seen from this account, the major value of Hawaiian forests is in water and soil conservation. Rugged topography and limited areas in which logging can be done will keep production costs high and supply limited in comparison with most imported supplies.

Recent surveys of planted exotics 25 to 40 years old indicate stands of 15 to 20 thousand board feet and over per acre while tests of the lumber cut from them show qualities fully comparable with trees grown in their native lands, thus making available local supplies of high quality woods for special uses.

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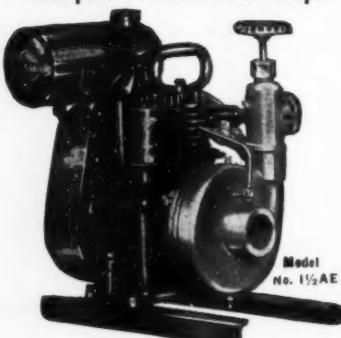
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There are many members and friends of the Association who find it impractical to contribute to its educational activities during their lifetime. Gifts in the form of a bequest are welcomed. Officers of the Association will gladly consult at any time with those who wish to know more about designating gifts for educational work in forest conservation.

Following is a paragraph suitable for incorporation in wills:

"I hereby give, devise and bequeath _____ to The American Forestry Association, Washington, D. C., a non-profit District of Columbia corporation, or its successor, or successors, for the purpose of promoting the corporate activities of said Association."

He Was a Prince of a Guy

By JOHN B. WOODS

Forty-eight members of the American student group known as the Biltmore Forest School were listening to a lecture by their leader, Doctor Carl Alwin Schenck, in the school's European headquarters at Darmstadt. The eminent forester and teacher, founder of the first forestry school in the United States, had brought these young men to his native Hesse to study at first hand the methods evolved by Germans for perpetuating wood supplies by regeneration and intensive management of the woodlands.

Touching upon the contributions made by forests to the German economy the speaker made some reference to his admiration for that country, pointing out that there the several monarchs, great and small, were all working earnestly at carrying on constitutional government, yet each recognized his responsibility for the welfare of his people, thus demonstrating that the principle of 'Noblesse oblige' still held good.

"Take the Grand-Duke of Hesse-Darmstadt, whose winter palace you pass every day. There is no harder working executive in this city. And do you know what he has done? On the hill, back of the old castle, he has had built a magnificent public bathing house which is also a swimming pool and recreation spot. It will be opened in two weeks, and I hope you boys go there often."

A bored voice from the back of the room spoke up, "Yeah, it's a nice place. Went there last night."

The Doctor glared at this interruption. "What do you mean you went there last night? It will not be opened until a week from next Monday."

"Can't help that. Pete and I went there last night. Had a swim, too."

"Oh, well, I suppose this is one of your kiddish jokes on teacher. But go ahead, tell us what you and Pete did at the Schwimbad. I shall need to know later, when the officer comes from the Polizei to ask what kind of a school I am running in Darmstadt."

"We didn't do anything wild, Doctor. Pete and I were walking up back of the old castle, and we passed this big, new building and read the sign that said it was a swimming pool. We tried the door, just out of curiosity, and it wasn't locked."

So we went in. And there was the big tank, full of water. And a shower was running somewhere. It sure was a swell place, and we were wondering why no people were around, when the shower stopped and here came a young guy in a bathing suit. He ran out on the board and plunged. Nice long one—he came up right by where we were standing."

"He said 'Hello,' and we said 'Hello.' Then he asked, 'You are Americans, aren't you?' And we said 'Yeah.' Then he asked, 'Would you like to swim?' And I said 'Yeah,' and Pete said, 'But we haven't any suits.' And this guy pulled himself up out of the pool and said, 'Come with me.' He gave us each a swimming suit. So we showered and went back to the pool and plunged in."

"Amazing!" remarked the Doctor, a puzzled look upon his fine, Nordic countenance. "And so you swam in the pool that was not yet open to the public."

"We sure did," Peter replied. "And had a swell time. The guy was swimming breast stroke, and we showed him how to do the Australian Crawl. Then he did a few fancy dives and showed us how to start them. Then we came home."

"Incredible!" the Doctor murmured. "That an honest German boy should act so much like an American. Who could he have been? Did he tell you his name?"

"Oh, probably he was one of the help, sticking around after hours to practice for the big opening. Tall, good-looking blond kid. Said his name was Louie."

"Spoke English like an Englishman, Pete volunteered. "And whoever he was, he was a nice guy. Yessir, Doctor, he was one prince of a guy."

The Doctor had been pacing back and forth in front of the class. Now he stopped, clapped his hands and faced them. "Of course. Your friend Louie. Of course he is a Prince of a Guy, his Ma was a Princess and his Great Grandma was an Empress, her name was Queen Victoria! He has an Auntie who is Empress of Russia. And his Pa is another nice guy who also was once a Prince. His name is Ernest, but also Louie like the boy. Grand-duke Ernst of Hesse-Darmstadt, the man who gave the Schwimbad to his native city."

AFA Thanks Anonymous Benefactor

The American Forestry Association wishes to express its deep appreciation to the writer of the following letter for a singular act of generosity and a significant contribution to the cause of conservation:

I wish to make the enclosed \$1500 (in \$100 bills) a nameless gift to the Association, as suggested on page 42 of AMERICAN FORESTS. To help the Association with its educational and other activities, I decided to give this sum while I am living rather than in a will. If possible, please print a small item in a future issue of AMERICAN FORESTS mentioning the gift so I will know it has been received.

Forester's Friend

(From page 23)

as tame as domestic animals, taking peanuts from their hands and sitting on their shoulders as they removed the shells.

What the city dweller did not know was that each pair of squirrels, in areas protected from hunters, raises from four to six young each year. And because squirrels normally do not stray far from the place they are born, certain suburban sections soon became overcrowded with the bushy-tailed creatures. As with humans, overcrowding meant housing and food problems.

Now the squirrel, red or gray, is not normally a vicious or even a destructive creature. In his native woods, when nuts are scarce during certain seasons, he will rob a bird's nest or raid a cornfield. But most of his regular fare comes harmlessly from the bounty of the forests, and hollow trees offer adequate housing.

But suburbanites, as a rule, do not plant nut trees (unfortunately for them as well as the squirrels!), and when a hole develops in a tree they fill it with cement or chop the tree down.

The net result is that the squirrel, in search of food and housing, is faced with a desperate situation. Lacking a normal home he breaks into attics and garages; lacking food he gnaws in his hunger at anything that seems to be edible there, including the waxed insulation on phone and light wires, the tires and upholstery of cars, and even shoes and book bindings.

Outdoors he chews the bark from expensive shrubs, robs bird-feeding stations, strips fruit trees, and breaks into deliveries of bread and milk left on porches, etc. His depredations in some areas have run into thousands of dollars.

Yet every time that irate householders have assembled "to do something about the squirrel problem," no one has been in favor of outright or wholesale slaughter. Poisons that would kill them could also kill pet dogs and cats. Most suburbs have laws against the use of rifles or shot-guns. Ordinary traps would injure pets and possibly children. Anyway most persons abhor the thought of killing the little scamp.

Although the suburban squirrel problem has become acute in such widely separated places as Pitts-



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burgh, Minneapolis, St. Louis, Newark, Cleveland and Detroit, it was a state that inherited the problem from another that first came up with a practical solution. Rapid migration of city dwellers from Washington, D. C., to adjacent areas in Maryland during recent years, confronted the Old Line state with a poser, not of its own making, in a growing squirrel nuisance question.

Maryland fortunately has an alert State Game and Inland Fish Commission, which had been confronted for a number of years with a problem that might be considered "the reverse English" of that facing suburbanites — not enough squirrels in the state forests to replenish normal tree attrition nor even to provide a modest amount of game for sportsmen.

At first, suburbanites did not like the prospect of sentencing their bushy-tailed friends to become hunters' targets, but when it was pointed out that the squirrel has a better chance of survival in the woods than he does in gnawing at a power line, the Commission's relocation program was given general approval by civic groups, the Boy Scouts, and conservationists. Hunting in state forests is carefully restricted by law.

The Maryland plan works like this: Simple wooden box traps are used. The traps do not harm the animal in any way. They have a wire front door that is open until the animal steps on a treadle enroute to get the peanuts bait at the far end. If other animals, including pets, are caught, they can easily be released. When a squirrel is caught all that is necessary is to notify the Commission, and a truck is sent to transport the trap and squirrel to the game refuge, well beyond the farthest subdivisions.

Last year the Boy Scout troops and the Izaak Walton League Clubs of the Bethesda-Chevy Chase and Silver Spring areas cooperated in the program. The Scout troops were paid 75 cents for each squirrel trapped and turned over to the Commission for release; Izaak Walton League Association members donated their time and efforts.

During the past 12 months a total of 658 squirrels was trapped in the suburban areas outside of Washington and released in upper Montgomery county, Frederick county and Carroll county. Of the total, 124 were caught by Commission personnel, the rest being trapped by volunteers.

THE FUTURE BOOK

It's All Done with Wood—Fifty years ago it looked as if American prodigality was surely denuding our forests. Yet, with present methods of logging and conservation and with new uses for wood waste, we now know there will always be enough wood. Why? Paul W. Kearney, noted New York free lance, author of over 400 articles in leading publications and the author of a new book, "Disaster on Your Doorstep," to be released by Harper's this month, provides the answers in the August issue of AMERICAN FORESTS.

Burn When the Wind Is High!—Why was Sweet Emory Lolley, a "cracker" in upper Florida, a confirmed timber arsonist most of his life? Why should a band of arsonists in Mississippi spread terror and destruction through Pearl River country for two days and nights setting fire to their only visible means of support, the piney woods? It's all explained by Ed Kerr in the August issue in an indictment of incendiaryism in the South.

On the Forestry Newsfronts—Two reports to the nation will be featured in the August AMERICAN FORESTS. The first will highlight the report of the second Higgins Lake Conference at Higgins Lake, Michigan, where last month 30 key leaders in forestry prepared the agenda for the Fourth American Forest Congress in October. The second will be a resume of the industry-wide conference called in Chicago by American Forest Products Industries, Inc., to pinpoint problems as they exist in regard to management on "farm forties" and other small holdings across the nation. Reports on this situation will be broken down on a regional basis.

How Uncle Sam Takes A Timber Census—Back from a forest vacation, one might well ponder how Uncle Sam's foresters go about the job of counting the nation's trees. It's a big job, of course, and requires a lot of know-how. How it's done is described by Robert D. Wray in a future issue.

President Launches Anti-Fire Drive

(From page 4)

ests and mountains to enjoy the many forms of healthful outdoor recreation which they afford and which we all need for spiritual and physical well-being.

"If every man, woman and child will join in the nation-wide drive to prevent forest fires—if each one of us will use extra care this year—we can surely cut down on the unnecessary destruction of vital resources by wildfire."

On a day when he was giving his full attention to explosive events in many parts of the world, the President spent twenty minutes with the delegation of representatives from forestry and the wood industries. In reply to a remark by Assistant Chief Earl W. Loveridge, of the Forest Service, that he "knew his brother, Milton," the President replied that "Milt got me interested in forestry about ten years ago and now I'm almost as enthusiastic about it as he is."

The President displayed marked interest in the assortment of toys and games that President Johnston, of the AFA, and President Dean, of the State Foresters Association, handed to him, commented that all his grandchildren would have a "field day" with "these interesting looking things." Consequently, he was loaded down with "Smokey" scarves, puzzles, belts and coloring books as he left his visitors en route to his next appointment.

A sequence of events all contributed to make the White House affair a significant one. A few days previously the President had travelled to Sagamore Hills, New York, to dedicate the former residence of the late President Theodore Roosevelt. Fol-

lowing that, the President proclaimed the week of June 15th as "Teddy Roosevelt Week" in honor of a great president and conservationist.

It was also just fifty years ago that the late James Berryman, cartoonist for the *Washington Star*, conceived the idea for his famous Roosevelt bear that became the trademark of his work. A small toy manufacturer in New York who saw the first Berryman bear conceived the idea for what became the famous Roosevelt teddy bear. Over 150 million of these bears have been sold since for millions of children.

Now comes the "Smokey" teddy bear, the nation's symbol for forest fire prevention and as one White House aide commented at the June 18th ceremony, "I can't help but feel Teddy Roosevelt would have been heartily pleased by this development."

Representatives of forestry and industry who attended the affair as arranged by Assistant Secretary of Agriculture J. Earl Coke were: Mr. Johnston, Mr. Dean, Mr. Loveridge, E. W. Tinker, executive director, American Paper and Pulp Association; Leo Bodine, executive vice president, National Lumber Manufacturers Association; James L. Madden, president, American Forest Products Industries, Inc.; Henry C. Wehde, Jr., assistant to the president, The Advertising Council, Inc.; James B. Craig, editor, American Forests; Chief R. E. McArdle, Director of Information and Education Dana Parkinson, and Director of the CFFP Clint Davis, all of the U. S. Forest Service.

Muskingum Study Starts

AFA's advisory committee to study forestry conditions in the Muskingum Watershed Conservancy District, New Philadelphia, Ohio, will confer with Bryce C. Browning, secretary-treasurer of the project, on July 3rd at New Philadelphia. The study to set up long-term forestry plans for the District was requested by Mr. Browning. Members of the committee are Ovid Butler, chairman; W. B. Greeley and Executive Director-Forester Lowell Besley.

<img alt="Advertisement for Musser Forests, Inc. featuring a cartoon illustration of a bear using various tree-related tools like a saw, ladder, and basket. Text includes: 'DON'T BREAK YOUR NECK! PREVENT ACCIDENTS!', 'CUT LABOR COSTS 50%', 'DOUBLE PRODUCTION! With the New, Amazing, LIGHTWEIGHT ALUMINUM Comb. Sawing, Pruning, Trimming, Fruit Picking, Shaking Pole', 'Cyrus Type Tree Saw No. 1', 'AVOCADO PEAR PEACH & APPLE PICKER No. 2', 'Fruit Picker No. 3', 'No. 4', 'No. 5', 'No. 6', 'No. 7', 'No. 8', 'No. 9', 'No. 10', 'No. 11', 'No. 12', 'No. 13', 'No. 14', 'No. 15', 'No. 16', 'No. 17', 'No. 18', 'No. 19', 'No. 20', 'No. 21', 'No. 22', 'No. 23', 'No. 24', 'No. 25', 'No. 26', 'No. 27', 'No. 28', 'No. 29', 'No. 30', 'No. 31', 'No. 32', 'No. 33', 'No. 34', 'No. 35', 'No. 36', 'No. 37', 'No. 38', 'No. 39', 'No. 40', 'No. 41', 'No. 42', 'No. 43', 'No. 44', 'No. 45', 'No. 46', 'No. 47', 'No. 48', 'No. 49', 'No. 50', 'No. 51', 'No. 52', 'No. 53', 'No. 54', 'No. 55', 'No. 56', 'No. 57', 'No. 58', 'No. 59', 'No. 60', 'No. 61', 'No. 62', 'No. 63', 'No. 64', 'No. 65', 'No. 66', 'No. 67', 'No. 68', 'No. 69', 'No. 70', 'No. 71', 'No. 72', 'No. 73', 'No. 74', 'No. 75', 'No. 76', 'No. 77', 'No. 78', 'No. 79', 'No. 80', 'No. 81', 'No. 82', 'No. 83', 'No. 84', 'No. 85', 'No. 86', 'No. 87', 'No. 88', 'No. 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W. S. Rosecrans—California, Chairman, California State Board of Forestry.

A. R. Watzek—Oregon, Roaring River Tree Farm.

William P. Wharton—Massachusetts, President, National Parks Association.

Vertress Young—Louisiana, Gaylord Container Corporation.

Last-minute Details Ironed Out for Higgins Lake Conference

As American Forests went to press, five key committees and their chairmen were being named by General Chairman Samuel T. Dana to point up deliberations that started at Higgins Lake, Michigan, June 29th to modernize AFA's Program for American Forestry, adopted in 1946, in the light of changed conditions. The program adopted in Michigan will serve as an agenda for the Fourth American Forest Congress called by The American Forestry Association October 29-31 in Washington, D. C.

Specifically, the main objective of the Fourth Forests Congress will be:

- 1) To bring the American public up to date in respect to the proper management and protection of public and private forest resources in the United States.

- 2) To bring together representatives of government, industry, agriculture, labor and the public for joint consideration of the forest situation.

- 3) To consider such revisions of AFA's Program for American Forestry as the Higgins Lake Committee may recommend.

Organization plans for the Michigan conference as announced by Lowell Besley, executive director-forester of The American Forestry Association are as follows: Monday, June 29th—general session at 8:30 a.m. for organization of conference followed by committee meetings starting at 11 a.m.; Tuesday, June 30th—general session at 8:30 a.m. for consideration of preliminary committee reports; 1:30 p.m.—committees resume sessions with final reports to be submitted to conference chairman at 5:30 p.m.; Wednesday, July 1—8:30 a.m.—consideration of final committee reports by full committee; 11 a.m.—completion of consideration of final committee; 3:30 p.m.—discussion of plans for American Forest Congress October 29, 30 and 31 in Washington, D. C.

In spending the week of June 8th at the Washington headquarters of The American Forestry Association to plan for the Michigan conference, Chairman Dana said he would be guided by the wishes of the conference on whether it wishes to write a

complete new Program for Forestry or modify the present program while adhering to the general framework adopted in 1946. In view of changed conditions since 1946, Chairman Dana said he would not be surprised to see a drastically altered program come out of the Higgins Lake deliberations which would mean that the Washington Congress could start from scratch in October in accepting or rejecting provisions set up by the Michigan committee.

Col. Greeley, in making an analysis of the 1946 program in May, urged the elimination of what he termed the "Mother Hubbard" section on What the Program Should Do in the 1946 report on the basis that it "tried to cover everything." In lieu of this section, he suggested a heading such as "The Most Important Things," declared he would list only three. These were:

- 1) To complete the essential task of forest protection with emphasis upon bringing control of insects and diseases up to a level with control of forest fires.

- 2) To bring the national timber crop up to two-thirds or three-fourths of the growing capacity of our forest lands.

- 3) To obtain the maximum economic and social service from our forests by realistic development of multiple use in their management, with particular emphasis upon the growing importance of conservation and control of water resources.

"The general structure of the program itself in 1946 with the headings and pithy comments following each group of planks was excellent and could well be followed again," Col. Greeley commented.

W. S. Rosecrans, chairman of the 1946 Congress and now in Europe, was another participant in shaping up the original program who urged in May that the importance of water be given careful study in the re-modeled version and that significant gains in forestry be given minute attention.

Complete coverage on the Higgins Lake sessions and the final agenda adopted by the group will be presented in the August issue of AMERICAN FORESTS Magazine.

Fire's Their Meat

(From page 16)

sibly go back out and lend a hand "for just a little while."

"Sure," the Indian leader said, and routed out his men. And the "little while" stretched out until 11 o'clock that night!

Vince Schroeder, on the supervisor's staff of the Coconino National Forest in Arizona, took a crew of Hopi Indians to a fire in Montana. The only transportation available at the moment was a cargo plane. The time was October, the plane was unheated, and it left Winslow, Arizona, at nightfall. It was a cold, rough trip. The plane unloaded them at Missoula, Montana, at 4:00 a.m., then came a bus ride of 55 miles to the jump-off camp. At eight o'clock the crew began a 12-mile hike to the base camp, arriving at noon. And after being fed it went on the fire line—not to bed.

Their cooperativeness is not based on docility, by any means; they are only one generation removed from the warriors who periodically raided

RESEARCH GRANTS — Three new grants totaling \$210,000 to support research and fellowships for graduate study at the Yale School of Forestry have been announced by George A. Garratt, dean. They are: Crown-Zellerbach Foundation, \$30,000; Crossett Lumber Company, \$80,000; Weyerhaeuser Timber Foundation, \$100,000.

white settlements for 200 years. In fact, a son of the famous Apache chieftain Geronimo, who fought the United States Army tooth and toenail for most of his life, is at this moment a chief of the Mescalero Apaches, home of the Red Hats.

The Indian crews insist on electing their own leaders, and woe betide the officious white boss who attempts to circumvent them.

They have some rigid taboos which must be observed. For example, the Pueblo Indians and the so-called nomadic tribes—Apaches, Navajos—were bitter enemies long before the coming of the white man. While they now engage in some exchanges at certain Indian festivals, on fires they must have separate bed grounds, and even separate chow lines. And they will not tolerate being mixed in crews.

Still, their good nature is tradit-

Plan To Attend THE FOURTH AMERICAN FOREST CONGRESS

OCTOBER 29, 30, 31, 1953

WASHINGTON, D. C.

Conservationists from all over America will convene in Washington on October 29, 30, 31 to re-examine all of the aspects of Forest Management and protection on public and private lands in the United States.

The occasion will be the FOURTH AMERICAN FOREST CONGRESS. Previous Congresses were held in 1882, 1905 and 1946. This Congress will take the place of The American Forestry Association's 1953 Convention.

Members and friends of the Association are cordially invited to attend and participate in the deliberations. It is anticipated that approximately 1,000 Conservation leaders from all parts of the United States will attend this important three-day gathering.

You are urged to make your hotel reservations as promptly as possible. A partial list of Washington Hotels is given below and in sending your reservation direct to the Hotel please state that your attendance is in connection with the FOURTH AMERICAN FOREST CONGRESS.

Headquarters for the Congress will be at the Statler Hotel, where the Annual Banquet of The American Forestry Association will be held on the night of October 30.

HOTEL RATES FOR THE FOURTH AMERICAN FOREST CONGRESS

	Single	Double	Double—Twin Beds
STATLER HOTEL, 16th and K Streets, N. W.	\$6.50-11.00	\$10.00-14.50	\$11.00-19.50
AMBASSADOR HOTEL, 14th and K Streets, N. W.	6.00- 8.00	8.50-12.00	10.50-12.50
BLACKSTONE HOTEL, 1016 17th Street, N. W.	4.50- 7.50	6.50- 9.50	7.00-10.00
CARLTON HOTEL, 16th and K Streets, N. W.	11.00-14.00	14.00-15.00	14.00-15.00
HAMILTON HOTEL, 14th and K Streets, N. W.	6.00- 8.00	8.50-11.50	9.50-11.50
LAFAYETTE HOTEL, 16th and Eye Streets, N. W.	7.00- 8.00	10.00-11.50	10.00-11.50
MAYFLOWER HOTEL, Conn. Avenue and DeSales Street	6.50-15.50	12.50-18.50	13.00-19.50

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We should help our advertisers because they help us. They, too, are important cogs in safeguarding our forests and related natural resources. They provide the tools and the services we need to do a creditable job.

In spending their money with us our advertisers are trying to do the things we are trying to do. That is why they deserve our support.

THE AMERICAN FORESTRY
ASSOCIATION

tional. Despite all the injustices suffered at the hands of the Whites in the past, their attitude toward their paleface brethren is one of tolerance, even amused tolerance it sometimes seems. It is not unusual for a group of them, leaving for home, to dress up in whatever semblance of tribal regalia may be possible and put on an Indian dance for the edification—or awe—of the people assembled at the airport to see them off. Or while filing up the trail from camp to the fire line one may step off beside the trail, execute a few fancy steps and announce to his appreciative companions, "This is old Snow-On-The-Nose, doing the Put-The-Fire-Out dance."

The largest reservoir of Indians available for fire fighting is on the Navajo Reservation, which lies in Arizona, New Mexico, Utah and Colorado. One of the few growing Indian tribes—there are about 45,000—the Navajos are scattered over 25,000 square miles of rough and almost roadless country. They are a pastoral people, hence live in single family groups, often long distances apart.

Getting a fire crew assembled, either for training or for shipment out to a fire would be well nigh impossible, except for a team of experts at the business which happens to be available. They are Hollis Palmer, assistant supervisor of the Sitgreaves National Forest, and Alley Aldrich, an Indian Service peace officer who headquarters at Holbrook, Arizona, which is also the headquarters of the Sitgreaves Forest.

Both know their "Navvies," especially Aldrich, who was raised among them and speaks their language fluently—no mean feat in itself. Palmer is who sees to welding the tribesmen into smoothly functioning units and trains them in the arts of fire fighting. But when the call comes for help, quick, that's Aldrich's department. How he manages to get word to so many isolated "hogans" in so short a time in that forbidding land of high mesas and deep canyons only a Navajo—and Aldrich—could comprehend.

In 1951 New Mexico had the worst fire season in its history. The supply of local men soon became exhausted. The organized Navajo and Hopi crews were called out, but a lot more help was needed. The Indian Service offices were skeptical about getting many more men, in any reasonable length of time. A

good many of the more available workers were off the reservation working in the beet fields in Colorado and elsewhere.

But Aldrich put his private "grapevine" in operation—and rounded up the astonishing total of 1600 men.

Irvin Pat Murray, of the Cibola National Forest, had charge of some 400 of them on the great McKnight fire in the Gila country. By the time that fire was under control another one was burning in the same region and was already several thousand acres in extent. But there was also an Indian ceremonial going on at Flagstaff, Arizona. Nothing is dearer to an Indian's heart than a ceremonial. Murray put it up to his Navajos and Hopis. They had done their duty, he told them, and while he would like to have them go on to the other fire, if they felt they just had to go to Flagstaff, so be it.

They held a pow-wow—or rather two pow-wows; the Navajos and Hopis don't mix, except at joint ceremonials. Regrettably they came to a decision: so long as there was a fire burning, they would have to fight it.

The call for Indian fire fighters throughout the West is growing by leaps and bounds. Though the 1952 fire season was not a particularly critical one, the southwestern foresters recruited and shipped out 33 crews of 25 men each, to California, Colorado, Idaho, Montana, Washington, and Wyoming. Eight of them served in more than one state before returning home. Two more crews were assembled and held in readiness in case of need. The previous year, ten Indian crews were on California fires alone at one time.

Foresters on the receiving end of the service are loud in their praises of the Indians. On their part, the Indians are equally satisfied. They like the prestige which accrues to them, they like the fire camp grub, which is better than they have at home, and they like the pay, which they get in cash instead of merchandise from a trading post or company commissary. Assistant Supervisor Palmer estimated that in 1951 the Navajos and Hopis alone took home from their fire fighting between \$300,000 and \$400,000.

But most of all, they like to "fly in the great birds" to far off lands and pit their skill against the destructive element which has menaced man and all his works since time immemorial.



What's NEWS across the nation

A. G. MEZERIK'S ARTICLE "PAPER, FOOD FOR THOUGHT" published by American Forests in April will be translated into 88 different languages for publication in the Far East, Scandinavian nations, Europe and Australia, the Department of State's Overseas Division of Information has announced. The interest in papermaking, especially in newsprint, is greater today than ever before in history the Information Division reported.

SIX DIFFERENT AREAS OF LOGGING INTENSITIES are being set up on the Huntington experimental forest of the State College of New York to determine the effect on wildlife, Dr. William Webb, biologist of the forest, announced. The areas will include a "skinned" area of 1000 acres. Others will include 75, 50, 25, 20 and 10 percent removal cuts. The forest, 150 miles south of Lake Placid, will carry on the experiment for a ten-year period.

HENRY MCKNIGHT, SECRETARY OF THE PRESIDENT'S NATIONAL agricultural advisory committee and an honorary vice president of The American Forestry Association in May was named to the board of directors of the Weyerhaeuser Timber Company.

RECEIPTS FROM NATIONAL FORESTS CONTINUE ON THE UPSWING, the Department of Agriculture has announced. An increase of \$3,955,943 or seven percent for the first three quarters of the fiscal year 1953 over receipts for the same period a year ago was reported. Approximately 93 percent of the receipts were from sale of timber and related products.

PURCHASE OF APPROXIMATELY 136,000 ACRES OF LAND IN A FOUR-COUNTY region in North Carolina has been announced by the West Virginia Pulp and Paper Company. While badly cut over in the past, West Virginia foresters say the land has a good forest potential which should provide the firm with good pulpwood reserves for the future.

A ONE MILLION DOLLAR RESEARCH PROGRAM DESIGNED TO CUT HOME BUILDING costs will be launched by the nation's lumber industry. It will be set up by the Products and Research Committee of the National Lumber Manufacturers Association. According to D. B. Frampton, Ohio lumber manufacturer, major emphasis will be placed on lamination. The key aim of the program will be "greater value for the (public's) lumber dollar through the development of new and improved uses of wood."

FOR THE THIRD STRAIGHT YEAR, THE SOUTH HARVESTED A RECORD amount of pulpwood according to a statement released last month by the U.S. Forest Service. The report shows that 12 southern states last year cut a total of 14,600,000 cords of pulpwood, or more than half of the total U.S. cut of 25 million cords for 1952. The South's pulpwood cut was four percent greater in 1952 than in 1951 and 17 percent greater than in 1950. Georgia was the South's leading producer with two and a half million cords.

NEW ENGLAND HAS MORE FORESTED LAND PER ACRE THAN ANY other section of the U.S. the New England Committee of the National Planning Association reports. However, it produces only half of its annual consumption of two billion board feet. To meet this deficiency, the association has urged the area's timberland owners to adopt a series of positive actions aimed at better forest management.

WHAT'S NEWS ACROSS THE NATION—(Continued)

WHEN SAMUEL T. DANA RECEIVED AN HONORARY DOCTOR OF SCIENCE degree from Yale University last month it marked the first time a forester had been so honored by Yale. Another AFA director, D. C. Everest, of the Marathon Corporation, last month was awarded an honorary doctorate from the University of Wisconsin.

THE WHITE PINE WEEVIL, WHICH SELDOM KILLS A TREE, nevertheless prevents the development of billions of board feet of merchantable white pine timber in New England, entomologists report. A survey in New Hampshire forests last year showed that in this state alone, the white pine weevil had reduced the potential lumber supply from standing white pines by two million board feet. This damage is representative of the damage in other Northeast states, the scientists say.

THIS IS THE "SHEARING" TIME OF THE YEAR FOR GROWERS OF American red and Scotch pine Christmas trees, the Pennsylvania Christmas Tree Growers' Association reports. Some call it thinning, the association's bulletin reports, others pruning and still others shaping. Shaping is actually the thing that is done. Pruning is generally a term used in connection with fruit trees. Trimming is the process of taking the lower limbs off conifers left growing for timber. Shearing is the artificial shaping of Christmas trees during their growing period from two feet high until of marketing size. End lesson on nomenclature.

IN URGING APPROPRIATION OF \$125,000 FOR OAK WILT RESEARCH and control work in Pennsylvania, State Secretary of Agriculture Miles Horst said "there may never be another opportunity to save the oak trees of Pennsylvania from oak wilt unless action is taken immediately and continued for at least two years." Fifty-seven percent of all timber trees in Pennsylvania are oaks. The disease was discovered in the state in 1950 and in 1951 the General Assembly appropriated \$50,000 to combat it.

CYCLONES THAT NEVER REACH THE HEADLINES DAMAGE MINNESOTA'S FOREST crop to the tune of half a million dollars yearly according to a report made by the Minnesota and Ontario Paper Company. Most of this blowdown timber is salvaged.

NEARLY THREE MILLION TREES WERE PLANTED BY WISCONSIN SCHOOL CHILDREN this spring as a part of 4-H and FFA training in Wisconsin schools, T. A. Peterson, forestry specialist at the University of Wisconsin, reports. Some 3000 4-H members planted around 800,000 of the trees in 66 counties. School forest projects took 532,750 of the trees. The rest—1,638,850—were planted by FFA students in 64 counties.

BEAVER IS NOT AN ANIMAL EXCLUSIVELY INDIGENOUS TO WILDERNESS COUNTRY, according to New Jersey's State Division of Fish and Game. A total of 170 beavers were trapped in ten counties of the state during the 1953 beaver-trapping season from February 1 to 28. The state has been restocking beaver in certain areas where their dam building activities are beneficial in maintaining water tables, retarding floods and increasing waterfowl and fish habitat.

A STORY ON AFA'S ANNUAL CONSERVATION AWARDS in the June issue of American Forests was read into the Congressional Record on June 10th by Congressman Watkins M. Abritt, Virginia, a member of the awards committee. Deadline for this year's nominations for awards is August 1.

THREE NEW GRANTS TOTALING \$210,000 TO SUPPORT RESEARCH and fellowships for graduate study at the Yale School of Forestry were announced by George A. Garratt, dean. The grants were from: The Crown-Zellerbach Foundation, \$30,000; The Crossett Lumber Company, \$80,000; and the Weyerhaeuser Timber Foundation, \$100,000.

TWENTY FIVE YEARS AGO D. C. EVEREST, OF THE MARATHON CORPORATION, called to order a forestry conference in Milwaukee dedicated to take the state out of the deforestation doldrums. What with the present form of nonpolitical conservation organization in the state, an effective forest crop law and a well-organized forest fire protection system, the results of that original meeting are readily apparent. A lot of greenery has come over the hill in Wisconsin in the last quarter of a century. To study this progress and further accelerate it a second conference has been called for December 3 and 4 in Milwaukee. Mr. Everest will preside at this one, too, and many of the people who attended the first meeting will again be present, including C. L. Harrington, superintendent of forests and parks in the state.

Letters

(From page 3)

I am wondering whether or not extra copies of this article can be obtained. . . The writer is endeavoring to develop a committee in central Florida to encourage "Cash Crops" effort as proposed by the Florida Forests Industries Committee, and I believe the article in question may stimulate an interest that might not otherwise be aroused.

O. W. Smith
Astatula
Lake County
Florida

Tax Law Praised

EDITOR:

How to get bank money into forestry development, especially individually-owned woodlands, has been one long hard problem (They're Banking on Forestry, May 1953). What makes it harder is that there is plenty to be said on both sides. A woodland can be a horrible investment much more easily than a good one.

However, it seems to me that the new New Hampshire tax law offers a way to resolve the differences. Anyone who follows the dictates of this law in the handling of his woodlands in New Hampshire is almost bound to turn out a secure investment.

Therefore, if participation of banks in the development of woodlands were predicated on there being a tax law such as the New Hampshire law is effect in the state in which the loan is to be made much would be done to further good tax laws in the timber states and bank loans would be made secure.

Henry van Loon
Engineers and Architects
Francisco and Jacobus
New York, New York

82 and 10

Editor:

I was much interested in two articles in the April issue of AMERICAN FORESTS, "Steward of Seward's Folly" and the one concerning saws, as my life work has been a woodworker—from the stump to the cabinet work. Have always been a lover of the woods. It seemed like a Church, one built by God Himself.

Most of my life has been in New Hampshire. All I can do in the way of conservation is renew my subscription and two for friends in New Hampshire at Christmas.

Thanks for a fine magazine. Am 82 now, but still have all my fingers after 65 years 'round saws.

Edwin M. Crane
Daytona Beach, Florida

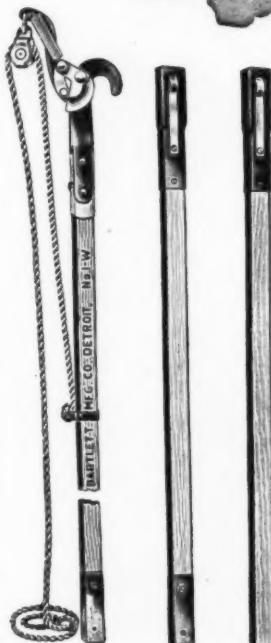
Education

Editor:

I believe, as a professional forester, that your magazine is one of the best general education magazines published on the subject of forests and conservation . . . AMERICAN FORESTS is useful in broadening our own outlook on forestry as well as interesting others in the varied phases of the subject. I, therefore, would eagerly show AMERICAN FORESTS to such as the city dweller and country people who have no concept of conservation or wise forest use.

Theodore G. Scher
Munson, Florida

Tree Trimming Days Are Here!— Use BARTLETT for ease of operation and protection to the operator



Let this No. 1-WJ Jointed Pruner do the Stretching

It has the Compound Lever side cutting head and also double leverage due to the pulley which is attached to curved lever. It will sever any branch up to 1 1/4" in diameter with the slightest effort.

Only a side cutting head leaves clean wounds. Made in 4 foot sections easily joined together to make the desired overall length.

No. 1-WJ JOINTED TREE TRIMMER	
2 section 8 ft. overall	\$12.15
3 " 12 ft. overall	\$15.90
4 " 16 ft. overall	\$19.65

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1 to 5 gals.
\$3.50 per gal.

6 1-gal. cans
(1 carton)
\$2.50 per gal.

5-gallon drum
\$10.00 per drum

F.O.B. Detroit

Express or Freight



No. 999 HAND PRUNER

This drop-forged tool steel 9-inch Hand Pruner has a crucible steel blade and hardened hook. Unsurpassed.

PRICE DELIVERED \$6.25



No. 777 TWO HAND PRUNER

Novel design places the blade on opposite side from general custom; makes possible greater efficiency and usefulness because pruner is especially adapted to use by right handed men. Hook remains stationary, blade closes. Will not wound the bark.

Price Delivered
777—26" Handles with 4" Plain Ferrule \$6.85

777—26" Handles with 10" Strap Ferrule \$7.15

Where delivered prices are shown, delivery applies to U.S.A. only.



No. 127—Price delivered \$4.50

No. 127—24" PARAGON SAW. This curved blade, draw cut pruning saw is ideal for all-around pruning. Best quality saw steel. Easy grip handle.



No. 114B—Special Utility Saw combines for the first time: Quick cutting, Smooth cutting, Easy operation. Price delivered \$6.30



No. 41 TUTTLE TOOTH SAW

This popular saw is made in 20 and 24-inch lengths. Equipped with a special extra-large handle. Tuttle tooth design is excellent for large cuts.

Price Delivered
20" \$5.25
24" \$5.95

BARTLETT MFG. CO.

Box 19—3003 E. Grand Boulevard.

Detroit 2, Michigan

Feature Photo of the Month

Photos used on this page will be of unusual rather than esthetic qualities and subject matter will be restricted to scenes, events, objects or persons related to the use, enjoyment or unique aspects of our renewable natural resources. For each picture selected AMERICAN FORESTS will pay \$10.



In Hawaii, on the Island of Oahu, grows an unusual tree called the "honeymoon" or "autograph" tree, so named because honeymooners and visitors etch their names on its leaves. Actually a "Clausea Rosea," the tree retains its leaves for many years (note dates on leaves)



YOU LOSE WITH EACH Forest Fire

Help Us Stop This Needless Waste of our country's natural resources. Hand these A.F.A. Book Matches imprinted with your name or advertising to your customers, employees and friends. Keep Forest Fire Prevention in their minds . . . before their eyes at all times. The need of protecting our forests from fires is great . . . and the cost of these fire-preventing matches is modest.

Your Name is in the Spotlight . . . Big and bold every time a match is used. Participation in this national campaign adds to your prestige. You sell your services as you sell fire prevention.

Order Today . . . Take your choice of two attention-getting designs. Design "A" is printed in fiery red and black on a yellow background. . . . Design "B" is green and brown on a blue background. 4 cases (10,000 match books) . . . same imprint . . . same design . . . same address only \$80.00 transportation prepaid. Transportation collect on less than 4 cases.



ORDER YOUR FOREST FIRE BOOKMATCHES TODAY — JUST FILL OUT AND MAIL THIS COUPON NOW

Check these Facts:

Each case contains 2,500 Match Books
(50 Boxes of 50 each)

4 cases \$80.00

10 cases 175.00

Transportation Prepaid

(Same Imprint—Same Address)

1 case \$25.00

2 cases 45.00

Transportation Collect

Your ad is on every Match Book

Add the following Sales Tax:

California 2½% (Los Angeles and San Francisco 3%), Colorado 2½% (Denver 1%), Connecticut 3%, Iowa 2%, Kansas ½, Louisiana 2%, Maryland 2%, Missouri 2%, Mississippi 2%, Rhode Island 1%, Tennessee 2%, New York City (Manhattan, Bronx, Brooklyn, Queens) 2%, Syracuse, N. Y. 2%, Ohio 3%, Alabama 2%.

THE AMERICAN FORESTRY ASSOCIATION

919 17th Street, N.W., Washington 6, D. C.

Date _____

Please enter our order for _____ cases of Forest Fire Prevention Bookmatches with imprint as shown below. Style _____. Please specify style.

Check enclosed.

Bill us.

Send sample flats.

**IMPRINT
SHOULD
READ**
(PLEASE PRINT)

SHIP TO

Name _____

Street _____

City _____

State _____



THIS is one of the Cat* D7 Tractors with No. 7A Bulldozers owned by the California State Division of Forestry. Forest Ranger Charles P. Campbell says: "We feel these 'dozers have saved many acres of valuable timber. One takes the place of 100 men fire fighting. The service we get from our Caterpillar Dealer is superior."

Fire fighting is just one of many jobs for these versatile yellow 'dozers. They've got 160 miles of road and firebreaks to maintain. Here this D7 team is building a new road to Iron Peak Lookout, 4,350 feet in elevation.

That's rocky stuff it's *rolling* along—tough to handle. But the blade, of heavily reinforced construction welded into a rigid one-piece unit, is *extra tough*. The cutting edges, reversible for extra service, and the replaceable end bits, are hardened for longer wear.

You'll get a *lot* of work with *little* down time at *low* cost from this slugger. For maximum performance, blade

capacity is matched with tractor HP. And ease of adjustments and handling, *plus* excellent operator visibility, contribute further to big production.

Your Caterpillar Dealer backs this unit and *all* Caterpillar-built equipment with fast, on-the-spot service. Ask him to *show* you how it can outwork any competitive 'dozer. He'll be glad to demonstrate!

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

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NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE

